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No 6021 LONDON SATURDAY, JANUARY 21, 1939 CCXXXVI

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ADDRESSES AND ORIGINAL ARTICLES

he Rehabilitation of the Injured Workman By DONALD STEWART, M R C P 129
lacental Blood for Transfusion By J HOWKINS, F R C.S, and H F BREWER, M D 132
rophylaxis of Tuberculous Empyema By L. ROBERTS, M R.C P 134
enal Changes in Malignant Hypertension By C. WILSON D M and F B BYROM, M R C P (*illus on plate*) 136
terruption of Coma in Insulin Shock Therapy By R FRASER, M R C P and D A STANLEY, B Sc. 140
astric Secretions during Pathological Hypochloræmia By B M NICOL, M.B, and A LYALL, M R.C.P (*with charts*) 144
Surgical Procedure for Ulcerative Colitis By Hon J F GAHA, M B (*with chart*) 146
liners' Dyspnœa By J N PETERSON, M D, J M PETERSON D Sc, and C.W STARTUP, Ph D (*with chart*) 147

LINICAL AND LABORATORY NOTES

light blindness Treated with Vitamin A. By C VAILLANT, M R C.P, and L GILLIS, M B 149
as Gangrene By BETTY WALKER, M B 150

EVIEWS AND NOTICES OF BOOKS

he Emotional Factor in Visceral Disease By H G McGregor, M R C.P 150
Vhitla's Dictionary of Treatment By R S Allison M R C.P, and C. A Calvert, F R C.S I 151
rinciples and Practice of Obstetrics By Prof J B DeLee, M D 151
Statistical Methods for Research Workers By Prof R A Fisher, F R.S 151
1938 Year Book of Radiology Edited by C A Waters, M D, and Ira I Kaplan M D 151
A Treatise on Hygiene and Public Health By B N Ghosh F.R.F.P S G 152
Tuberculose et tuberculides nasales. By Profs J Margarot and J Terracol 152
Clinical Examination of the Nervous System By Prof G H Monrad-Krohn F R C.P 152
Dental Anatomy and Physiology and Dental Histology By T W Widdowson, L.D S 152

LEADING ARTICLES

MALIGNANT HYPERTENSION 153
SURGERY IN ULCERATIVE COLITIS 154
PSYCHOTHERAPY BY LAY MEN 154
CHANGES IN THE POISONS RULES 155

ANNOTATIONS

Cigarette smoking 156
The Placenta and Toxæmia 156
Treatment of Asthma 156
Hæmoglobin Katabolism 157
A Hundred Years 157
Sympathectomy for Skin Disease 158
Celsus de Medicina 158
Significance of Pain in Cardiac Infarction 158
The G M C Under Fire 159
The Ætiology of Prostatic Adenomata 159
Spain 160

THE AIR-RAID

III—General Principles of Wound Surgery and Anæsthetics P H MITCHINER, F R C S, and E M COWELL, F R C S 171

GRAINS AND SCRUPLES

From a Physiologist in America—III 173

SPECIAL ARTICLES

Epidemic Jaundice A Hospital Outbreak By E M MARTLAND, M.B, and A L WINNER, M R C.P (*with chart*) 161
National Council for Mental Hygiene Outpatient Mental treatment Clinics—Mental Hygiene and the Press 163
Medicine and the Law Bogus Doctor—Consent to Dental Extraction—Fee for Emergency Treatment 167
First aid Posts and Hospitals in Air Attack 168
Scotland Aberdeen University—Edinburgh Royal Infirmary 169
United States of America The Hourly Distribution of Stillbirths and Neonatal Deaths (*illus*) 169
Paris Expansion of the Pasteur Institute—Institutional Care of the Insane Foreigner 170

THE LANCET 100 Years Ago 168

THE LANCET Index, Vol II, 1938 168

PANEL AND CONTRACT PRACTICE

Relation between Doctor and Patient 175

PUBLIC HEALTH

Pneumonia and Influenza—The Incidence of Poliomyelitis—London's Underground Water supply 176
Infectious Disease in England and Wales 177

OBITUARY

James Rutherford Morison, F R C.S (*with portrait*) 178
The late Prof Wingate Todd 179
Charles Edward Alexander MacLeod, F R C S 180

LETTERS TO THE EDITOR

A New Remedy for Epilepsy (Dr R Coope) 180
Whither the Almoner? (Mr E Rock Carling F R C.S, Dr R D Lawrence) 181
Oily Suspensions of Sulphanilamide Compounds (Dr L E H Whitby) 181
Prophylaxis with Sulphanilamide (Dr Reginald Lightwood) 182
Fracture of the Patella (Mr G O Tippett, F R.C S) 182
Lord Horder and the *Daily Mail* (Mr Stanley Bell) 182

MEDICAL NEWS

Royal College of Surgeons of England 183
University of Glasgow 183
Harveian Society of London 183
Refugee Nurses 183
Child Guidance Conference 183
King's College Hospital, London 183
Ophthalmic Exhibition 183
International Cancer Congress 183
Society of Radiotherapists of Great Britain and Ireland 183
Order of the Nile 183
Award of Pavlov Prize 183
Cod liver Oil for Spain 183
Hospital Amalgamation at Sheffield 183

NOTES, COMMENTS, AND ABSTRACTS

Principles of Medical Research The Limitations of Histology By LORENZ S MICHAELIS, M D 186
Drink 187
The Grading of Nurses 188
The Drug Call 188
Mental Disease Explained 188
Folk lore and Medicine 160
The Special Areas 185

Medical Diary 184
Vacancies 184
Births Marriages Deaths 185
Appointments 185

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Assistant Physician and Demonstrator of Practical Medicine, St. Bartholomew's Hospital;
Physician, Royal Chest Hospital; Consulting Physician,
Royal National Sanatorium, Bournemouth

CONTENTS

SECTION I
THE HISTORY

CHAP.
1. THE SIX MAJOR SYMPTOMS
2. THE SIX MAJOR SYMPTOMS (*contd.*)
3. MINOR SYMPTOMS
4. THE AUXILIARY HISTORY

SECTION II
PHYSICAL EXAMINATION OF THE CHEST

5. INSPECTION
6. PALPATION
7. PERCUSSION
8. AUSCULTATION

SECTION III
SPECIAL INVESTIGATIONS

9. THE SPUTUM
10. BLOOD EXAMINATIONS—PLEURAL FLUID
11. RADIOLOGY OF THE CHEST
12. SPECIAL DIAGNOSTIC METHODS

SECTION IV
DISEASES OF THE RESPIRATORY TRACT

13. THE NOSE
14. THE MOUTH
15. THE LARYNX
16. THE TRACHEA AND BRONCHI

SECTION IV
(*continued*)

CHAP
17. ASTHMA
18. BRONCHIECTASIS
19. TUMOURS OF THE BRONCHI
20. CHEST INJURIES — DISORDERS OF THE PULMONARY CIRCULATION
21. EMPHYSEMA
22. COLLAPSE OF THE LUNG
23. PNEUMONIA
24. BRONCHO-PNEUMONIA
25. PNEUMONITIS
26. LUNG ABSCESS
27. PULMONARY TUBERCULOSIS
28. PULMONARY TUBERCULOSIS (*contd.*)
29. TREATMENT OF PULMONARY TUBERCULOSIS
30. NON-TUBERCULOUS CHRONIC LUNG INFECTIONS
31. FIBROSIS OF THE LUNG
32. THE PLEURA
33. "PLEURISY"
34. EMPYEMA
35. TUMOURS OF THE PLEURA
36. THE MEDIASTINUM
37. THE DIAPHRAGM

INDEX

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No 6022 LONDON SATURDAY, JANUARY 28, 1939 CCXXXVI

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ADDRESSES AND ORIGINAL ARTICLES

ffect of War on Civilian Populations By MAURICE WRIGHT, M.D 19

Hormonal Relationship Between the Ovary and the Adrenal Gland and its Significance in the Ætiology of Mammary Cancer By W CRAMER D Sc M R.C.S. and E S HORNING, D.Sc. (*illus*) 1

ombined Serum and Sulphanilamide in Treatment of Streptococcal Infections in Mice By H LOEWENTHAL, M D 1

he Use of Placental Blood for Transfusion By A P M PAGE, M R C P, K G SEAGER, M B and E M WARD, M D (*illus*) 2

ransfusion with Placental Blood By J HALBRECHT, M.D 2

iverticula of the Duodenojejunal Flexure By R W RAVEN, F R C S (*illus*) 2

LINICAL AND LABORATOR NOTES

e Oxford Inflator A Simple Resuscitator By Prof R. R MACINTOSH, F R C.S , and C L G PRATT, M.D (*illus*) 20

urcsis following Administration of Sulphonamide in Renal Œdema By A W D LEISHMAN, M R C.P (*with chart*) 20

MEDICAL SOCIETIES

yal Society of Medicine
ection of Physical Medicine Physiological Aspects of Rheumatism 20
ection of Neurology Neurological Complications of Pregnancy 20
dical Society of London Poliomyelitis and Artificial Aids to Respiration 21
anchester Medical Society Gold Therapy 2

REVIEWS AND NOTICES OF BOOKS

Physiology of the Nervous System By Prof J F Fulton M D 214
Practical Pathology By Prof J Miller, F R C P E and J Davidson, F R C P E 211
Yearbook of General Medicine Edited by G F Dick and others 214
Major Endocrine Disorders By S Levy Simpson, M R C P 214
A Manual of Reparative Plastic Surgery By Prof J E Sheehan, F A C S 215
Treatment of Fractures By C L Scudder, F.A C S 215
Alcohol and Human Life By C C Weeks, M R C S 215
Evolution of Obstetric Analgesia By Prof A M Claye, F R C S (with a chapter by W S Sykes, M B) 215
British Journal of Surgery 216
British Journal of Children s Diseases 216

LEADING ARTICLES

BETWEEN FRIENDS 217
HOW THE VIRUS OF POLIOMYELITIS SPREADS 217
MANCHESTER'S HOSPITAL CENTRE 218
TUBERCULOSIS IN INDIA 219

ANNOTATIONS

Glasgow to Printing House Square 220
National Service 219
Control of Hæmorrhage in Jaundice 220
" Men of Medicine 220
Population Research 221
Management of Gangrenous Limbs 221
Itching 222
Effort Syndrome 222
National Nutrition Policies 222
Hypertonic Intravenous Saline 223
Social Factors in Disease 223
War Surgery in Spain 223
Intersexuality 224

SPECIAL ARTICLES

Construction of an Abridged *Life Table By A BRADFORD* HILL D Sc , and M G HYDER M B 225
Scotland Peripheral Arterial Disease 226
Paris Postgraduate Courses 226
Australasia Company Pharmacy Practice 227
Medicine and the Law Swab counting 242

THE LANCET 100 Years Ago 213

THE LANCET Index, Vol II, 1938 245

THE AIR-RAID

IV—Wound Shock, Hæmorrhage, and Blood transfusion P H MITCHINER F R C S , and E M COWELL, F R C.S (illus) 228

GRAINS AND SCRUPLES

From a Physiologist in America—IV 231

OBITUARY

Prof Herbert Henry Woollard M D , F R S (*with portrait*) 230

LETTERS TO THE EDITOR

X ray Therapy for Toxic Goitre (Drs F P Poulton and W L Watt) 235
Psychotherapy by Laymen (Dr Ann Harling) 235
Surgery in Ulcerative Colitis (Mr J P Lockhart Mummery F R C S) 235
Self consciousness and Public Speaking (Sir Francis Fremantle F R C P , M P) 236
"The G M C Under Fire " (Dr Gordon Ward) 236
The ' Iron Lung (Dr C L G Pratt) (*illus*) 237
Multiple Anæsthesia (Drs R J B Broad and G Organe) 237
Placental Blood for Trans*fusion (Dr G Dalley)* 237
Prophylaxis with Sulphanilamide (Dr E D Hoare) 238
Oxycephaly (Dr R S Handley) 238
Leprosy (Dr E Muir) 238
The Feet of the Industrial Worker (Dr L D Bailey) 238

PUBLIC HEALTH

Vital Statistics for 1938—Pneumonia and Influenza —Opening of New Hospital School 233
Infectious Disease in England and Wales . 234

MEDICAL NEWS

University of Oxford 241
University of Cambridge 241
Society of Apothecaries of London 241
University of Wales , 241
International Congress of Comparative Pathology 241
Royal Institution of Great *Britain* 241
Hunterian Society 241
Course on *Industrial* Hygiene 241
Postgraduate Courses in Germany 241
Medical Society of Individual Psychology 241
Medical Cruise to Egypt 242
Naval Medical Compassionate Fund 242
Hospital Management 242
Society of Public Analysts 242
Swiney Prize 242
A Course at Jena 242
The Cancer Bill 242
Nursing and National Service 242

NOTES, COMMENTS, AND ABSTRACTS

Acute Epidemic Diseases Among Eskimos in Angmagssalik By ARNE HOYGAARD, M.D 245
Lymphogranuloma Venereum 246
Tuberculosis in Newfoundland 246
Bourgeois Babies 247
Cataloguing in Special Libraries 247
Thoracic Surgical Implements 247
American Medical Pioneers 248
Criminal Investigation 248
The Drug Traffic 248
Yearbook of Learned *Societies* 248
The Doctor s Views 248
Sensory Changes in Dystrophia Myotonica . 241

Medical Diary . , 243
Births, Marriages, Deaths 243
Appointments—Vacancies 244

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CONTENTS

SECTION I
THE HISTORY

CHAP.
1. THE SIX MAJOR SYMPTOMS
2. THE SIX MAJOR SYMPTOMS (*contd.*)
3. MINOR SYMPTOMS
4. THE AUXILIARY HISTORY

SECTION II
PHYSICAL EXAMINATION OF THE CHEST

5. INSPECTION
6. PALPATION
7. PERCUSSION
8. AUSCULTATION

SECTION III
SPECIAL INVESTIGATIONS

9. THE SPUTUM
10. BLOOD EXAMINATIONS—PLEURAL FLUID
11. RADIOLOGY OF THE CHEST
12. SPECIAL DIAGNOSTIC METHODS

SECTION IV
DISEASES OF THE RESPIRATORY TRACT

13. THE NOSE
14. THE MOUTH
15. THE LARYNX
16. THE TRACHEA AND BRONCHI

SECTION IV
(*continued*)

CHAP.
17. ASTHMA
18. BRONCHIECTASIS
19. TUMOURS OF THE BRONCHI
20. CHEST INJURIES — DISORDERS OF THE PULMONARY CIRCULATION
21. EMPHYSEMA
22. COLLAPSE OF THE LUNG
23. PNEUMONIA
24. BRONCHO-PNEUMONIA
25. PNEUMONITIS
26. LUNG ABSCESS
27. PULMONARY TUBERCULOSIS
28. PULMONARY TUBERCULOSIS (*contd*)
29. TREATMENT OF PULMONARY TUBERCULOSIS
30. NON-TUBERCULOUS CHRONIC LUNG INFECTIONS
31. FIBROSIS OF THE LUNG
32. THE PLEURA
33. "PLEURISY"
34. EMPYEMA
35. TUMOURS OF THE PLEURA
36. THE MEDIASTINUM
37. THE DIAPHRAGM

INDEX

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No 6025 LONDON SATURDAY, FEBRUARY 18, 1939 CCXXXVI

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ADDRESSES AND ORIGINAL ARTICLES

Makers of John Hunter By W Sampson Handley, F R C S 369
Suppurative Pneumonitis and Lung Abscess The Value of Radiology By A Garland, M D, and F R Berridge, M B, D.M R 375
ibrocystic Disease of Bone with Skin Pigmentation and Endocrine Dysfunction By K. Robson M R C P and J W Todd, M R C P 377
eatment of Pneumonia with 2 (p Aminobenzene sulphonamido) Pyridine (M & B 693) By A L Agranat, M R C P E, A O Drfosti, M D and D Ordman, M B (*concluded*) 380
e Use of Stored Blood for Transfusion By G A Elliott, M R C P R G Macfarlane M D and J M Vaughan, M R C P (*illus*) 384
llection and Transfusion of Preserved Blood By C R Boland, M D, N S Craig M D, and A L Jacobs, M R C.P (*illus*) 388

CLINICAL AND LABORATORY NOTES

rdiazol Convulsions By J E O N Gillespie, M B 391
ddison's Disease in a Boy of 12 By A Renshaw, M D, and G B Manning, M B 392

MEDICAL SOCIETIES

yal Society of Medicine
Section of Orthopædics
Congenital Dislocation of he Hip 393
dical Society of London
Use and Abuse of Purga ives 394

REVIEWS AND NOTICES OF BOOKS

The Pituitary Gland Edited by W Timme, A M Frantz, and C C Hare 397
Clinical Studies in Lactation By H Waller M B 397
Tuberculosis Among Children and Young Adults By J A Myers M D 397
Pye's Surgical Handicraft Edited by Hamilton Bailey, F R C S 398
Bacteriology By Prof A D Gardner, F R C S 398
A Concise Pharmacology By F G Hobart Ph C, and G Melton, M R C P 398
Practical Microbiology and Public Health By Prof W B Sharp, M D 398
Clinical Obstetrics By Prof A L Mudaliar, M D 398

LEADING ARTICLES

Immunisation with Artificial Antigens 399
The Lost Swab 399
Deeper Diving 400

ANNOTATIONS

An Epidemic of Toxic Polyneuritis 401
Thrombosis After Herniotomy 402
Supervoltage X Radiation 402
Vaccinia Propagated in Hen s Eggs 402
Sulphanilamide Cyanosis 403
How Far Cancer Is Now Treated Adequately 403
Constructive A R P 404
Postoperative Circulatory Failure 404
Stored Blood for Transfusion 405

THE AIR-RAID

VII—Wounds of Bones and Joints P H Mitchiner, F R C S, and E M Cowell, F R C.S (*illus*) 408

GRAINS AND SCRUPLES

From Autolycus III—Speeches and Addresses 411

SPECIAL ARTICLES

The Blood test on Trial 406
Milk and Disease A Deputation to the Ministry of Health 406
Scotland Edinburgh Surgical Chair 407
Medical Mobilisation 424
The Hunterian Festival 424
Medicine and the Law Trauma and Sarcoma 425
Infectious Disease in England and Wales 421
The Lancet 100 Years Ago 423
The Lancet Index, Vol II, 1938 423

LETTERS TO THE EDITOR

Protection of Children in Time of War (Mr H D Watson) 413
Torsion of the Appendix of the Testis (Mr J Hosford, F R C S) 413
As Others See Us (Dr G H Crisp) 414
Prophylaxis of Tuberculous Empyema (Dr L Roberts) 414
Stigma and Prejudice (Dr J R Whitwell) 414
The Feet of the Industrial Worker (Dr T Marlin) 415
Excretion of Injected Aneurin (Mr M Pyke, Ph D) 415
Clinical Use of Stilbœstrol (Mr W R Winterton, F R C.S) 416
Septicæmia or Bacteræmia? (Mr H A T Fairbank, F R C S.) 416
'Mothers' Welfare Centres' (Dr M H Jackson) 416
The Nature of Viruses (Sir Patrick Laidlaw F R C P F R S) 416

OBITUARY

Prof Charles Cyril Okell, F R C P (*with portrait*) 422
Prof Arthur Smithells, F R S 423
Thomas Freeman Long, M.R C S. 423

PARLIAMENT

Blood tests in Bastardy Cases—Cancer Treatment 417
Notes on Current Topics Workmen's Compensation 418
Question Time Cost of Living Inquiry—Government Camps for Civilians—Emergency Hospitals in War time—Conditions in Coastal Ships 418

MEDICAL NEWS

University of Cambridge 420
University of London 420
University of Sheffield 420
University of Manchester 420
Royal College of Surgeons of England 420
Royal College of Physicians of Edinburgh 420
Royal Institute of Public Health and Hygiene 420
Society of Public Analysts 420
Royal Statistical Society 421
Lectures on Sex Education 421
Hospital Almoners' Association 421
Hunterian Society Annual Dinner 421
National Nursing Need 421
Katherine Bishop Harman Prize 384
Postgraduate Medical Courses in Italy 405
London School of Hygiene and Tropical Medicine 407
Memorial to Sir Frederick Mott 412

NOTES, COMMENTS AND ABSTRACTS

The Prevalence of Contraception Raymond Pearl's Study 428
Iron Calcium and Phosphorus 429
'The Stronghold' 429
A National Language for India 429
Pain in Cancer of the Cervix 430
Annual Report of a G P 430
Sulphanilamide Eruption 430
An Information Service in Human Genetics 430
The All Too Common Cold 396

Appointments 426
Vacancies 426
Medical Diary 427
Births Marriages Deaths 430

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CONTENTS

SECTION I
THE HISTORY

CHAP.
1. The Six Major Symptoms
2. The Six Major Symptoms (*contd.*)
3. Minor Symptoms
4. The Auxiliary History

SECTION II
PHYSICAL EXAMINATION OF THE CHEST

5. Inspection
6. Palpation
7. Percussion
8. Auscultation

SECTION III
SPECIAL INVESTIGATIONS

9. The Sputum
10. Blood Examinations—Pleural Fluid
11. Radiology of the Chest
12. Special Diagnostic Methods

SECTION IV
DISEASES OF THE RESPIRATORY TRACT

13. The Nose
14. The Mouth
15. The Larynx
16. The Trachea and Bronchi

SECTION IV
(*continued*)

CHAP.
17. Asthma
18. Bronchiectasis
19. Tumours of the Bronchi
20. Chest Injuries — Disorders of the Pulmonary Circulation
21. Emphysema
22. Collapse of the Lung
23. Pneumonia
24. Broncho-Pneumonia
25. Pneumonitis
26. Lung Abscess
27. Pulmonary Tuberculosis
28. Pulmonary Tuberculosis (*contd.*)
29. Treatment of Pulmonary Tuberculosis
30. Non-Tuberculous Chronic Lung Infections
31. Fibrosis of the Lung
32. The Pleura
33. "Pleurisy"
34. Empyema
35. Tumours of the Pleura
36. The Mediastinum
37. The Diaphragm

INDEX

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No 6024 LONDON SATURDAY, FEBRUARY 11, 1939 CCXXXVI

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ADDRESSES AND ORIGINAL ARTICLES

Treatment of Pneumonia with 2 (*p*-Aminobenzene-sulphonamido) Pyridine (M & B 693) By A L Agranat, M R C P E, A O Dreosti, M D, and D. Ordman, M B (*with charts*) (*To be concluded*) 309
Treatment of Chronic Myeloid Leukæmia By M C G Israëls, M R C P 317
Torsion of the Appendix of the Testis By G D F McFadden, F R C S (*illus*) 320
Aneurysm of Both Popliteal Arteries By C Flemming, F R C S 322
Urea Clearance in Hæmatemesis. By D A K. Black M.B 323
Excretion of Injected Aneurin (Vitamin B_1) By Prof J Marrack, M D, and Helga F Hollering 325
Intraperitoneal Rupture of the Rectum By T A James, M B 326

MEDICAL SOCIETIES

Society of Medical Officers of Health Scarlet Fever 327
Royal Society of Medicine Sections of Surgery, Medicine and Anæsthetics Surgery in Diabetic Patients 329
North of England Obstetrical and Gynæcological Society Radium Treatment of Uterine Hæmorrhage 332
Devon and Exeter Medico Chirurgical Society Neuromyelitis Optica 332

REVIEWS AND NOTICES OF BOOKS

Secondary Gastro-intestinal Disorders Reciprocal Relationships By Prof. J Friedenwald, M D, Prof. T H Morrison, M.D, and S Morrison M D 333
British Encyclopædia of Medical Practice Vol X Edited by Sir Humphry Rolleston 333
Introduction to Industrial Mycology By G Smith M Sc 333
Synopsis of Physiology By Prof A Rendle Short, F R C S, and C L G Pratt, M D 334
Yearbook of the Eye, Ear, Nose, and Throat Edited by Prof E V L Brown, M D, Prof L Bothman, M D and Prof S J Crowe, M.D 334
Dietetics in General Practice By Leslie Cole F R C P 334
Petite chirurgie et technique médicale courante By Prof G Roux 334

LEADING ARTICLES

The New Outlook in Pneumonia 335
Clubbing 336
Treatment of Acute Osteomyelitis 336
Planning in Orthopædics 337

ANNOTATIONS

Sexual Periodicity in Man 338
Changing Problems in Food Analysis 338
Excretory Changes After Hæmatemesis 339
Torsion of the Appendix of the Testis 339
Vasodilator Nerves 340
The Tentorial Pressure Cone 340
To China and Back 341
The Situation in Spain 341
Leprosy in East Africa 342
Refugee Scholarship 342

SPECIAL ARTICLES

Refugee Scholars and Scientists 343
Biological Standardisation 343
United States of America A Special Message on Health—Wingate Todd 344
Medicine and the Law Medical Confidences—Diphtheria Contact's Dilemma—The Improved Public house 345

The Lancet 100 Years Ago 356

THE AIR-RAID

VI—Varieties of Wounds P H Mitchiner, F R C S, and E M Cowell, F R C S (*illus*) 347

PUBLIC HEALTH

Supplementary Feeding 346
Infectious Disease in England and Wales 346

PANEL AND CONTRACT PRACTICE

Incapacitating Sickness in Scotland — Post-confinement Pregnancy 351

LETTERS TO THE EDITOR

Stigma and Prejudice (Dr S A MacKeith) 352
Correction of Posture (Mr W A Cochrane, F.R C S.E) 352
Renal Changes in Malignant Hypertension (Drs C Wilson and F B Byrom) 353
The Air raid (Brevet-Colonel H W Webber, R.A.M C (T), retd) 354
Progesterone and the Adrenal (Dr A. Fischer and Mr M Engel) 354
Clinical Use of Stilbœstrol (Dr P M F Bishop) 354
Examination for Insurance Companies (Dr J H Moynihan) 355
Self consciousness and Public Speaking (Dr C Lillingston) 355
Lymphogranuloma Venereum (Dr S M Laird) 355
Diverticula of the Duodeno jejunal Flexure (Mr C E Shattock, F R.C.S) 355
Placental Blood for Transfusion (Drs. A. P M Page, K G Seager, and E M Ward) 355
Prophylaxis of Tuberculous Empyema (Dr M H Pappworth) 356
Littritis? (Dr C L Leipoldt) 356
Autoserum Therapy for the Opium Habit 356

GRAINS AND SCRUPLES

From Autolycus II—Books and Banquets 357

PARLIAMENT

Notes on Current Topics Cost of Public Assistance—Safety in Mines—Civil Medical Defence Services 358
Question Time The General Medical Council—Emergency Hospitals in War-time—Midwifery in Scotland 359

OBITUARY

Joseph Lewin Payne, M R C S, L D.S (*with portrait*) 361
Robert Cochrane *Buist*, M.D 361
The late Prof Woollard 361
Gilbert Richardson, M.R C.P 362

MEDICAL NEWS

University of Cambridge 362
Royal College of Physicians of London 362
Scottish Conjoint Board 362
Maternity and Child Welfare Conference 362
Society of Apothecaries 362
University of Liverpool 362
Gresham College 362
Fellowship of Medicine 362
Congress on Brucella Infections 362
Institute of British Surgical Technicians 363
Scottish Advisory Committee on Cancer 363
British Postgraduate Medical School 363
Safeguarding of Water-supplies 363

NOTES, COMMENTS AND ABSTRACTS

Criminal Abortion A Suggestion for Lessening its Incidence By Joan Malleson M B 366
The Bare Minimum 367
Malaria and Mosquitoes 368
British Journal Photographic Almanac 350
Parents and the Common Fevers 365

Medical Diary 363
Appointments 364
Births, Marriages Deaths 364
Vacancies 365

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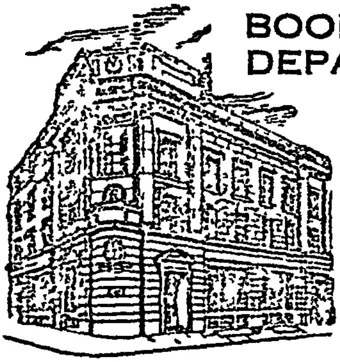

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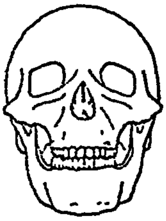

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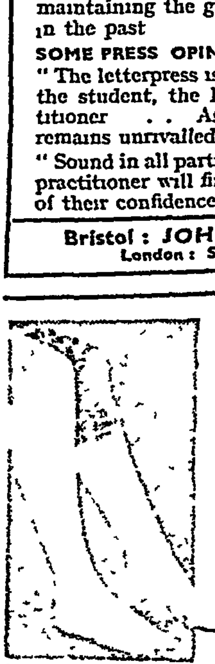

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No 6026 LONDON SATURDAY, FEBRUARY 25, 1939 CCXXXVI

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ADDRESSES AND ORIGINAL ARTICLES

The Mode of Action of Drugs of the Sulphonamide Group By Prof J McIntosh, M D, and L E H Whitby F R C.P 431
Triazol 156 in Chronic Schizophrenia By I Atkin, M D, D.P M 435
Remissions in Schizophrenia Insulin and Convulsion Therapies Compared with Ordinary Treatment By H Stalker, M.B, D Psych, W Malcolm Millar, M B, and J M Jacobs, M B 437
Cardiazol Therapy of Schizophrenia Some Statistical Data. By F Reitmann, M D 439
Boeck's Sarcoidosis. By H B Stallard, F R.C S, and C B V Tait, M.B (*illus*) 440
Atmospheric and Surface Sterilisation by Aerosols By R. J V Pulvertaft, F.R C P, G C. Lemon, F Ph, and J W Walker (*illus*) 443
Hæmatoma of the Flexor Tendon Sheaths of the Hand Following Penetrating Wounds By E A Devenish, F R C S 447
Introduction of an Iodised Oil into the Tracheobronchial Tree By P Ellman, M R.C P (*illus*) 448

MEDICAL SOCIETIES

Royal Society of Medicine Section of Radiology Radiology of Acute Respiratory Diseases 450
Association of Clinical Pathologists Streptococcal and Pneumococcal Infections 451
Manchester Medical Society 453
Royal Academy of Medicine in Ireland 454

The Lancet 100 Years Ago 454

REVIEWS AND NOTICES OF BOOKS

Syphilis, Gonorrhœa and the Public Health By Nels A Nelson, M D, and Gladys L Crain R N 455
Science and Art of Joint Manipulation Vol I The Extremities By J Mennell, M D 455
Nelson New Loose Leaf Medicine 455
Diets for Diabetics Arranged in menu form By G E Beaumont, F R C P 455
Treves s Handbook of Surgical Operations Revised by Cecil P G Wakeley, F R C S 456
Relaxation in Everyday Life By E J Boome, M R C P, and M A Richardson 456
Quarterly Journal of Medicine 456
Acta Medica U R S S 456

LEADING ARTICLES

Convulsion Therapy 457
Bacteria in the Air 457
Tonsillectomy on its Defence 458

ANNOTATIONS

Chemoprophylaxis 460
Sprue 460
A Portrait 461
Posture in Thoracic Surgery 461
Simpler Treatment of War Wounds 461
Liquid Paraffin and Carotene Absorption 461
A New Neurological Institute 462
Humus and Humanity 462
Menopausal Arthralgia 462
Lead Nipple shields 462
Deep Security 463
Directorship of Water Examination M W B 463
Tumbling in the Hay 463
A Hundred Broken Noses 464
Lending Our Ears 464

GRAINS AND SCRUPLES

From Autolycus IV—Busmen s Holidays 473

CONTROL OF THE COMMON FEVERS

Rheumatic Fever Reviewed by Dr J Alison Glover (*with charts*) 465

THE AIR-RAID

VIII—Abdominal and Pelvic Injuries P H Mitchiner, F R C S, and E M Cowell, F R.C.S (*illus*) 469

PUBLIC HEALTH

Metropolitan Water—Continuous Towel Cabinets 474
Infectious Disease in England and Wales Influenza and Pneumonia 475

SPECIAL ARTICLES

Medicine and the Law Patient and Healer 475
Paris Agitation Against Diphtheria Vaccination 476
Ireland Retirement at 65 477
United States of America 477

LETTERS TO THE EDITOR

"The New Outlook in Pneumonia" (Dr T Anderson) 478
Aneurysm of Popliteal Artery (Mr C MacLeod, F R.C S) 478
Use and Abuse of Purgatives (Mr J E H Roberts, F R C S) 478
Pregnancy Tests and Notification (Miss F W Stella Browne) 478
Septicæmia or Bacteræmia? (Dr R. Miller) 479
Fibrocystic Disease of Bone (Prof L G Parsons, F R C P) 479
Autoserum Therapy for Drug Addiction 479

OBITUARY

Conrad Fitzgerald, M.R.C.S 480
George John Jenkins, F R.C S 480
William Joseph McCardie, M B 481
James Playfair M'Murrich, Ph D 481
Graham Scales Simpson F R C S, L D S 481
Ewing Mould Glynn Whittle, M R C P 482
William McLorinan, L R C P.I. 482
Dr Auguste Widmer 482

PARLIAMENT

Air raid Shelters 483
Notes on Current Topics Unemployment and Malnutrition 483
Question Time University Education in War time—Voluntary Hospitals and the L C C 484

MEDICAL NEWS

University of Oxford 485
University of Birmingham 485
University of Leeds 485
University of Glasgow 485
International Congress of Military Medicine and Pharmacy 485
King's College Hospital 486
Course in Psychological Medicine 486
Hunterian Society 486
Medical Group of Left Book Club 486
Society of Apothecaries of London 486
German Radiological Society 486
British Medical Association 486
Parkes Memorial Prize 486
Chadwick Lectures 486
Liverpool Psychiatric Clinic 479

NOTES, COMMENTS AND ABSTRACTS

The Cancer Bill 488
An Early Medical Text 488
X ray Equipment 488
Pros and Cons of the Toothbrush 488
Typhus Fever and Tuberculosis 489
Speech Defect 489
A New Vaccine Bottle (*illus*) 489
Diphtheria Immunisation 490
Recognition of Chiropractors in Zürich 490
An Aid to Examination of the Thyroid 490
Tropical Diseases Bulletin 490
Scorpion Bite 472

Vacancies 486
Medical Diary 487
Appointments 490
Births, Marriages Deaths 490

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CONTENTS

SECTION I
THE HISTORY

CHAP.
1. The Six Major Symptoms
2. The Six Major Symptoms (*contd.*)
3. Minor Symptoms
4. The Auxiliary History

SECTION II
PHYSICAL EXAMINATION OF THE CHEST

5. Inspection
6. Palpation
7. Percussion
8. Auscultation

SECTION III
SPECIAL INVESTIGATIONS

9. The Sputum
10. Blood Examinations—Pleural Fluid
11. Radiology of the Chest
12. Special Diagnostic Methods

SECTION IV
DISEASES OF THE RESPIRATORY TRACT

13. The Nose
14. The Mouth
15. The Larynx
16. The Trachea and Bronchi

SECTION IV
(continued)

CHAP.
17. Asthma
18. Bronchiectasis
19. Tumours of the Bronchi
20. Chest Injuries — Disorders of the Pulmonary Circulation
21. Emphysema
22. Collapse of the Lung
23. Pneumonia
24 Broncho-Pneumonia
25. Pneumonitis
26. Lung Abscess
27. Pulmonary Tuberculosis
28. Pulmonary Tuberculosis (*contd.*)
29. Treatment of Pulmonary Tuberculosis
30. Non - Tuberculous Chronic Lung Infections
31. Fibrosis of the Lung
32. The Pleura
33. "Pleurisy"
34. Empyema
35. Tumours of the Pleura
36. The Mediastinum
37. The Diaphragm
Index

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No 6027 LONDON SATURDAY, MARCH 4, 1939 CCXXXVI

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ADDRESSES AND ORIGINAL ARTICLES

A Plea for the Woman in Gynæcology and Obstetrics By C Lane Roberts, F R C O G 491

A Neurotropic Strain of Human Influenza Virus By C H Stuart Harris M R C P 497

Colloidal Aluminium Hydroxide in the Treatment of Peptic Ulcer By T Izod Bennett F R C P, and A M Gill M R C P (*with graphs*) 500

Clinical Administration of Androgens By G L Foss, M B (*with charts*) 502

Uterine Hæmorrhage Induced by Oral Administration of Pregneninonol By Prof B Zondek M D, and S Rozin M D 504

Isotonic Sodium Bicarbonate Solution in Diabetic Coma By E Kirk M D (*with chart*) 505

Cardiazol Treatment of Schizophrenia By M V Govindaswamy M B 506

Isolated Avulsion Fracture of the Lesser Tuberosity of the Humerus By J P McGuinness L R C P E 508

MEDICAL SOCIETIES

Royal Society of Medicine Section of Epidemiology and State Medicine 509

Medico Legal Society General Medical Council 510

Medical Society of London Fractures in the Extremities 512

North Western Tuberculosis Society Artificial Pneumothorax 514

REVIEWS AND NOTICES OF BOOKS

Avian Tuberculosis Infections By W H Feldman D V M 515

Insulin Its Chemistry and Physiology By H F Jensen Ph D 515

Textbook of Medicine Edited by J J Conybeare F R C P 515

Handbook of Midwifery By Sir Comyns Berkeley, F R C S 515

Methods of Tissue Culture By R C Parker, Ph D 515

Textbook of General Bacteriology By E O Jordan Ph D Revised by W Burrows Ph D 516

Tabes Dorsalis By Prof Dr F Curtius, Dr H Schlotter and Dr E Scholtz 516

Positioning in Radiography By K C Clark, F S R 516

Diseases of the Nose, Throat and Ear By Prof W W Morrison M D 516

Chemical Analysis of Foods and Food Products By M B Jacobs, Ph D 516

LEADING ARTICLES

Prophylaxis in War and Peace 517

A Pharmacologist Protests 518

A Progestational Effect by Mouth 519

Medical Refugees 519

ANNOTATIONS

Brief Story of St Thomas's 520

Carcinogenesis in the Lung 521

Infant Feeding in China 521

Sodium Bicarbonate in Diabetic Coma 521

The New School at Newcastle 522

Familial Periodic Paralysis 522

Cancer Clinics 522

Light Eyes and Glare 523

Sterilisation of Army Water-supplies 523

The Hospitals in Emergency 523

B C G in Rumania 524

GRAINS AND SCRUPLES

From a Part time Professor—I 537

SPECIAL ARTICLES

Medical Research Council Report Investigations for Government Departments (*to be concluded*) 525

Scotland Medical Curriculum 528

Extensions to Edinburgh Royal Infirmary (*illus*) 528

Medicine and the Law Tuberculosis after Anti-diphtheria Inoculation 530

Mental Nursing The Consultant's and the Medical Superintendent's Aspects 532

Medical Peace Campaign 538

The Lancet 100 Years Ago 524

THE AIR-RAID

IX—Chest Wounds P H Mitchiner, F R C S, and E M Cowell, F R C S (*illus*) 534

LETTERS TO THE EDITOR

Medical Foresight and A.R P (Dr J Rickman) 539

Bronchography (Dr L P E Laurent) 539

Convulsion Therapy (Dr I Atkin, Dr H Hill) 539

Fibrocystic Disease of Bone (Dr J F Brailsford) 540

Excretion of Injected Aneurin (Drs H G K Westenbrink and J Goudsmit) 540

As Others See Us 540

Refugees in France (Sir Arthur Stanley and Lord Ebbisham, Dr C F Hill and others) 541

Speech Defects (Mr H St John Rumsey, M.A) 541

PARLIAMENT

On the Floor of the House 542

From the Press Gallery Social Services—Holiday Camps—Makerere College in Uganda 542

Question Time Motor Drivers and Alcohol—Radium in Cornwall—Army Recruits Rejected 543

OBITUARY

Frank Gerard Clemow, M.D 546

Sir Hugh Reeve Beevor, F R C P (*with portrait*) 546

Lewis John Hobson, M D 546

The late Prof Graham Simpson 547

John Henry Harris M D 547

James Devon, F R F P S G 547

Prof Arne Kissmeyer, M D 547

John Ross Home Ross F R C P E 547

PUBLIC HEALTH

Need for a Safe Milk supply 548

Infectious Disease in England and Wales 545

MEDICAL NEWS

University of Cambridge 547

Society of Apothecaries 547

Royal College of Surgeons 547

University of London 548

Joint Tuberculosis Council 548

University College Hospital 548

The British Institute of Philosophy 548

International Hospital Congress 490

Conference of Workers for Cripples 501

International Union against Tuberculosis 506

Mayo Fellowship in Anæsthetics 552

NOTES, COMMENTS AND ABSTRACTS

Delinquency and Psychology 551

The Physiology of Vision 551

Tularæmia in the United States 551

A Psychological View of Education 551

Osteomalacia with Cœliac Disease 552

'The Biomotor' 552

Transdental Dislocation of the Atlas 552

Statistical Bibliography 552

Medical Diary 549

Vacancies 549

Appointments 550

Births, Marriages, Deaths 550

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CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ADDRESSES AND ORIGINAL ARTICLES

Surgical Revascularisation of the Heart The Experimental Basis By L O'Shaughnessy, F R C S, D Slome M B, and F Watson (*illus*) 617
Cancer of the Alimentary Tract By Sir Arthur Hurst, F R C P (*concluded*)—(*illus*) 621
Organic Psychoses in Children By Mildred Creak, M R C P 626
Herpes Simplex Studies on the Antibody Content of Human Sera By F M Burnet, M D, Ph D and Dora Lush, M Sc 629
Hæmoptysis and Lung Infiltration Caused by Avitaminosis By Torben Jersild, M D (*illus*) 632
Free and Combined Œstrogens in the Blood During Pregnancy By O Mühlbock, M D 631

MEDICAL SOCIETIES

Medical Society of London Coronary Thrombosis 634
Royal Society of Medicine Section of Proctology Megacolon 636
Liverpool Medical Institution and the Manchester Medical Society Congenital Megacolon and its Treatment 638

REVIEWS AND NOTICES OF BOOKS

Yearbook of General Surgery By Prof E A Graham M D 645
Outline of Roentgen Diagnosis By Prof L G Rigler, M.D 645
Traumatic Mental Disorders in Courts of Law By W A Brend M.D 645
Essentials of Human Embryology By Prof G S Dodds Ph D 646
Clinique chirurgicale des pays chauds By Botreau Roussel and six others 646
Medical Entomology By W A Riley Ph D, and O A Johannsen Ph D 646
The Rheumatic Diseases 646
Geburtshilfe und Frauenheilkunde 646

LEADING ARTICLES

Life Story of Simple Herpes 647
Wages and Sick Pay 648
Anti Tuberculosis Work in Wales 648
Twenty five Years of Psycho Analysis 649

ANNOTATIONS

C C H or C E P ? 650
Whooping-cough Diagnosis and Prophylaxis 650
A Simple Exposition of Population Problems 651
Radiographic Localisation 651
Osteogenic Action of Bone Grafts 652
County Councils 1889 to 1939 652
Mass Radiography 653
Indications for Cardio-omentopexy 653
The M O H 's Move House 654
Controversial Ground in Psychiatry 654

SPECIAL ARTICLES

Casualty Organisation in Air Raids By L Crome L R C P E, R L W Fisher, M B, and G B Shirlaw, L R C P E 655
Tuberculosis in Wales Report of the Committee of Inquiry 658
Medicine and the Law No Desertion During Insanity 660
Paris Epidemiological Aspects of the Spanish Refugee Problem 660

GRAINS AND SCRUPLES

From a Part time Professor—III 661

NEW INVENTIONS

The "Firlo" Eye magnet By N Bishop Harman, F R C S (*illus*) 638

THE AIR-RAID

XI—Wounds of Head, Spine, and Peripheral Nerves P H Mitchiner, F R C S, and E M Cowell, F R C S (*illus*) 639

PUBLIC HEALTH

Mental Health in London—Dr Porter's Retirement—L C C Whole-time Consultants 662
Infectious Disease in England and Wales 663

LETTERS TO THE EDITOR

Prevention of Postoperative Tetanus (Dr P Fildes, F R S, Prof. J McIntosh, M D) 664
Tolerance of Phenol Vapour (Prof Tanner Hewlett F R C P) 664
Standardised Names for Endocrine Products (Mr Aleck Bourne F R C S) 664
Erythema Nodosum (Dr J A Brocklebank) 665
Prontosil in Renal Œdema (Dr I A Sayed) 665
Sterilisation of Sodium bicarbonate Solution (Mr H Berry) 665

OBITUARY

Cuthbert Hilton Golding Bird F R C S (*with portrait*) 669
Philip Dymock Turner, M R C P 669
George Basil Price, F R C P (*with portrait*) 670
Arthur John Collis, D P H 670

PARLIAMENT

On the Floor of the House 666
From the Press Gallery Cancer Bill in the Lords—Scottish Coal Refuse 667
Question Time Health Services in Kenya Colony—Control of Medical Supplies for Civil Defence—Milk Pasteurisation—Diphtheria Immunisation—Unfit Houses in Rural Districts—Workers' Wages During Sickness—Nottingham Hospital and Institution Inquiry 667

MEDICAL NEWS

Royal College of Surgeons of England 671
Royal Faculty of Physicians and Surgeons of Glasgow 671
University of Manchester 671
Oxford Ophthalmological Congress 671
Queen's University Belfast 671
National University of Ireland 671
Naval Medical Compassionate Fund 671
Course on Disinfestation 671
British Postgraduate Medical School 671
Royal College of Obstetricians and Gynæcologists 671
Convalescent Home at Tadworth 671
Postgraduate Courses in Dublin 671
German Gynæcological Society 671
International Congress of Pædiatrics 672
Medical Society of London 672
Royal Society of Medicine 672
Central Midwives Board 672
Committee on Medical Aspects of Flying 672
Westminster Hospital 672
Medical Scholarships at London University 649
Cranial Radiography 665

The Lancet 100 Years Ago 672

NOTES, COMMENTS AND ABSTRACTS

Protection of Infants against Gas 675
The Storage of Eggs 675
The Medical Curriculum in Germany 675
Grancher or B C G ? 676
Sex in Adolescence 676
Standardisation of Hæmoglobinometers 676
A Variety of Experience 676
New Preparations "Desibyl" Capsules—Stilbœstrol and Stilbœstrol Dipropionate B W and Co 676
"O Death Where is Thy Sting ? 676

Appointments 673
Medical Diary 673
Vacancies 674
Births Marriages Deaths 674

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CONTENTS

SECTION I
THE HISTORY

CHAP.
1. THE SIX MAJOR SYMPTOMS
2. THE SIX MAJOR SYMPTOMS (*contd.*)
3. MINOR SYMPTOMS
4. THE AUXILIARY HISTORY

SECTION II
PHYSICAL EXAMINATION OF THE CHEST

5. INSPECTION
6. PALPATION
7. PERCUSSION
8. AUSCULTATION

SECTION III
SPECIAL INVESTIGATIONS

9. THE SPUTUM
10. BLOOD EXAMINATIONS—PLEURAL FLUID
11. RADIOLOGY OF THE CHEST
12. SPECIAL DIAGNOSTIC METHODS

SECTION IV
DISEASES OF THE RESPIRATORY TRACT

13. THE NOSE
14. THE MOUTH
15. THE LARYNX
16 THE TRACHEA AND BRONCHI

SECTION IV
(*continued*)

CHAP.
17. ASTHMA
18. BRONCHIECTASIS
19. TUMOURS OF THE BRONCHI
20. CHEST INJURIES — DISORDERS OF THE PULMONARY CIRCULATION
21. EMPHYSEMA
22. COLLAPSE OF THE LUNG
23. PNEUMONIA
24. BRONCHO-PNEUMONIA
25. PNEUMONITIS
26. LUNG ABSCESS
27. PULMONARY TUBERCULOSIS
28. PULMONARY TUBERCULOSIS (*contd.*)
29. TREATMENT OF PULMONARY TUBERCULOSIS
30. NON-TUBERCULOUS CHRONIC LUNG INFECTIONS
31. FIBROSIS OF THE LUNG
32. THE PLEURA
33. "PLEURISY"
34. EMPYEMA
35. TUMOURS OF THE PLEURA
36. THE MEDIASTINUM
37. THE DIAPHRAGM

INDEX

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No 6030 LONDON SATURDAY, MARCH 25, 1939 CCXXXVI

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ADDRESSES AND ORIGINAL ARTICLES

The Classification of Buccal Neoplasms in Relation to Treatment and Prognosis By A J GARDHAM F R C S (*illus*) 677

Anginal Syndrome due to Hypothyroidism By G E BEAUMONT F R C P, and J D ROBERTSON M R C P (*illus*) 682

Cyclopropane ' Sleep with Percaine Spinal Anæsthesia in Major Abdominal Operations By H DODD F R C S, and J T HUNTER, M.R.C.S (*with chart*) 685

Pulmonary Tuberculosis By B R CLARKE M D and D W WALLACE M.B 688

Stricture of the Small Intestine By A CAPLAN M R.C.P and W B ROANTREE, F R C S F (*illus*) 689

Treatment of Postencephalitic Parkinsonism with Bulgarian Belladonna By F J NEUWAHL M D 693

CLINICAL AND LABORATORY NOTES

A Test for Vitamin C Deficiency By MAX VAUTHEY, M D 695

Arterial Embolectomy By C L HEANLEY F R C S 696

MEDICAL SOCIETIES

Royal Society of Medicine

Section of Neurology Intraventricular Tumours 697

Section of Therapeutics and Pharmacology Vitamin E 698

Hunterian Society Misleading Leading Symptoms 699

THE LANCET 100 Years Ago 718

REVIEWS AND NOTICES OF BOOKS

The Social Function of Science By Prof J D Bernal, F R S 701

Ker's Manual of Fevers Revised by F L Ker M.B 701

Clinical Laboratory Methods and Diagnosis By R B H Gradwohl, M D 702

St Thomas's Hospital Reports Edited by Prof C L V S de Wesselow and C Max Page 703

LEADING ARTICLES

STATE AID FOR CANCER RESEARCH 703

M & B 693 IN THE U S.A 703

FIFTY YEARS OF LONDON GOVERNMENT 704

ANNOTATIONS

Two Cortical Hormones 706

Complement Fixation in Lymphocytic Choriomeningitis 706

The Syme Oration 706

Primary Suture of Sacrococcygeal Sinuses 707

Psychotherapy in General Practice 707

Tropical Macrocytic Anæmia 708

Psittacosis and Fulmar Petrels 708

Surgery Through the Ages 708

Bronchial Therapeutics 709

The Royal Society Elections 709

Effects of A T 10 on Metabolism 709

Postencephalitic Parkinsonism 710

The Health Resorts 710

PUBLIC HEALTH

End of ' Puerperal Fever ' Notification—Industrial Protection of Eyes—Municipal Aid for a Voluntary Hospital 722

Infectious Disease in England and Wales 728

SPECIAL ARTICLES

Effects of Lead on the Body 711

Medicine and the Law Alleged Responsibility of Local Authority for Doctors and Nurses—Charge for Water from Surgery Tap 713

Paris Fifty Years of the Pasteur Institute 714

United States of America Debate on Medical Care 715

Ireland Irish Hospitals Commission 716

Hospitals in Emergency The Scheme for London (*with map*) 723

L C C Jubilee Exhibition 725

GRAINS AND SCRUPLES

From a Part time Professor—IV 717

THE AIR-RAID

XII—Nursing Organisation and Nursing of Casualties P H MITCHINER, F R C S, and E M COWELL, F R C S (*illus*) 719

LETTERS TO THE EDITOR

Infection from Dressings (Dr R. Cruickshank) 726

Inquiries about Hospital Patients (Dr L P Lockhart) 726

Simple Herpes (Dr H H Brown F R C S) 726

Precancerous Conditions in the Stomach (Dr D Jennings) 727

Vaccines with Chemotherapy in Pneumonia (Dr F C. Eve) 727

Stored Blood for Transfusion (Dr R V Facey) 728

Mental Nursing (Dr F Pilkington) 728

OBITUARY

James Leonard Joyce, F R C S 729

Charles Alexander Clark, L D S (*with portrait*) 729

Robert Gibson M D 730

Sir Henry Lunn M D 730

PARLIAMENT

On the Floor of the House 731

From the Press Gallery The Cancer Bill—Bastardy (Blood Tests) Bill 732

Question Time Nutritional Standards of School children—Tuberculosis in Wales—Examination Tests for Nurses—Dental and Ophthalmic Treatment 733

MEDICAL NEWS

University of Cambridge 736

University of Dublin 736

Research Fellowships 736

College of Nursing 736

Conference on Nutrition 736

King Edward's Hospital Fund for London 736

European Mental Hygiene Reunion 736

Royal Society 736

General Medical Council 737

International Association for the Prevention of Blindness 737

Royal Society of Medicine 737

Red Cross Clinic for Rheumatism 737

A Danish Health Exhibition 737

Food Education Society 737

Preservation of Child Life 737

Moorfields Dinner 737

National Fitness Campaign 738

Royal Westminster Ophthalmic Hospital 738

Women in Russia 710

Hospitals Day 714

Incorporated Society of Chiropodists 735

NOTES, COMMENTS AND ABSTRACTS

Sulphanilamide and War Wounds 740

The Escape into Psychosis 740

Railway Transport for Invalids 740

Cobra Venom for Dysmenorrhœa 740

The Death of Claudius 740

Chemotherapy in Smallpox 740

Medical Diary 739

Appointments 738

Vacancies 739

Births Marriages Deaths 739

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CONTENTS

SECTION I
THE HISTORY

CHAP.
1. THE SIX MAJOR SYMPTOMS
2. THE SIX MAJOR SYMPTOMS (*contd.*)
3. MINOR SYMPTOMS
4. THE AUXILIARY HISTORY

SECTION II
PHYSICAL EXAMINATION OF THE CHEST

5. INSPECTION
6. PALPATION
7. PERCUSSION
8. AUSCULTATION

SECTION III
SPECIAL INVESTIGATIONS

9. THE SPUTUM
10. BLOOD EXAMINATIONS—PLEURAL FLUID
11. RADIOLOGY OF THE CHEST
12. SPECIAL DIAGNOSTIC METHODS

SECTION IV
DISEASES OF THE RESPIRATORY TRACT

13. THE NOSE
14. THE MOUTH
15. THE LARYNX
16. THE TRACHEA AND BRONCHI

SECTION IV
(*continued*)

CHAP.
17. ASTHMA
18. BRONCHIECTASIS
19. TUMOURS OF THE BRONCHI
20. CHEST INJURIES — DISORDERS OF THE PULMONARY CIRCULATION
21. EMPHYSEMA
22. COLLAPSE OF THE LUNG
23. PNEUMONIA
24. BRONCHO-PNEUMONIA
25. PNEUMONITIS
26. LUNG ABSCESS
27. PULMONARY TUBERCULOSIS
28. PULMONARY TUBERCULOSIS (*contd.*)
29. TREATMENT OF PULMONARY TUBERCULOSIS
30. NON-TUBERCULOUS CHRONIC LUNG INFECTIONS
31. FIBROSIS OF THE LUNG
32. THE PLEURA
33. "PLEURISY"
34. EMPYEMA
35. TUMOURS OF THE PLEURA
36. THE MEDIASTINUM
37. THE DIAPHRAGM

INDEX

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No 6031 LONDON SATURDAY, APRIL 1, 1939 CCXXXVI

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ADDRESSES AND ORIGINAL ARTICLES

The Aerial Spread of Streptococcal Infections By R. Cruickshank M D, and G E Godber M.R.C.P 741

A Rare Feature of the Ramsay Hunt Syndrome By C P G Wakeley, F R.C S, and J H Mulvany, F R C S (*illus*) 746

The Shipway Machine and Closed circuit Anæsthesia. By F B Mallinson, M R C S (*illus*) 750

Postoperative Thrombosis and Embolism Ephedrine and Atropine as a Prophylactic. By Prof R Pilcher, F R C.S 752

Pneumococcal Meningitis Treated with M & B 693 By D McAlpine F R C P, and G C Thomas, M D 754

Staphylococcal Septicæmia Treated with M & B 693 By H J Wade, M R C P (*with chart*) 756

CLINICAL AND LABORATORY NOTES

A Simple Method of Applying Extension to the Elbow By T A Butcher, M.D (*illus*) 757

Acute Trans diaphragmatic Prolapse of Viscera By J A Maxwell Cameron, F R C S E (*illus*) 757

MEDICAL SOCIETIES

Royal Society of Medicine
Section of Epidemiology Jaundice 759
Section of Disease in Children Familial Hepatitis and Chronic Jaundice 760

Medical Society of London Ocular Manifestations of General Disease 761

The Lancet 100 Years Ago 758

REVIEWS AND NOTICES OF BOOKS

Medical Organisation and Surgical Practice in Air Raids By P H Mitchiner F R C S and E M Cowell F R C S 763

Histological Technique for Intracranial Tumours By Dorothy S Russell, M D 763

A Synopsis of Hygiene By Sir Wilson Jameson, F R C P, and Lt Col G S Parkinson M R C S 764

British Journal of Children's Diseases 764

Journal of Social Ophthalmology 764

LEADING ARTICLES

Journals or Micro-films ? 765

Diphtheria 766

Medical Aspects of Aviation 767

ANNOTATIONS

Stored Blood 768

Psychiatric Aspects of Crime 768

School Meals and Milk 769

Surgical Relief in Oxycephaly 769

Typhoid Antigens 770

Intravenous Injection of Ascitic Fluid 770

Premature Separation of the Placenta 770

Irradiation of Zoster 771

Horse-serum Neuritis 771

Polycythæmia 771

A Surgeon s Autobiography 771

The Future of the Voluntary Hospitals 772

Prostatic Resection in Elderly Patients 772

PUBLIC HEALTH

First aid Posts and Ambulances (A R P) — Part time Medical Work for the L C C — Typhoid at Nottingham — Billeting of Refugees in Villages 788

Infectious Disease in England and Wales 802

SPECIAL ARTICLES

The Barcelona Blood-transfusion Service By F Duran Jorda M D 773

A State Medical Service Debate by Fellowship of Medicine 776

Medicine and the Law Damages for Contracting Undulant Fever 777

Australia Scientists at Canberra — National Insurance Abandoned 777

Paris Arrangements for Visiting Doctors 778

Ireland A Hospitals Bill — Census Report 779

LETTERS TO THE EDITOR

Mental Nursing (Dr A M Spencer) 782

Abridged Life Tables (Mr B Benjamin, F S S) 782

Cardiazol Convulsion Therapy (Drs H Hoff and J A Shaby) 782

Colour of Venous Blood in Rheumatism (Dr V Hetherington) 783

Sale of Patent Medicines (Mr F C Goodall, Ph C.) 783

Inquiries about Hospital Patients 783

PANEL AND CONTRACT PRACTICE

Not Temporary Residents — The Practitioners Fund — Costly Medicines 789

OBITUARY

John Samuel Risien Russell, F R C P (*with portrait*) 790

Robert McMillan Bowman, M B 790

William Isaac Cumberlidge, F R C.S 791

Ian Mount Grant, M.D 791

Roy Samuel Dobbin, F R C P 791

Elkin Percy Cumberbatch, F R C P (*with portrait*) 792

Prof Samuel Hybbinette 792

Clement Treves Neve, F R.C S 793

Harry Bacon Wilkinson, M R C S 793

The late Mr Leonard Joyce 793

The late Sir Henry Lunn 794

GRAINS AND SCRUPLES

From An Onlooker—I 780

PARLIAMENT

On the Floor of the House 784

From the Press Gallery Safety in Mines — Maternity Services in Dumfries-shire and Galloway 785

Question Time Water supply and Sewerage and Civil Defence — Army Recruits and Dental Treatment 787

MEDICAL NEWS

University of London 794

University of Dublin 794

Society of Apothecaries 794

Guy's Hospital 794

University of Sheffield 795

University of Leeds 795

University of Liverpool 795

Royal College of Obstetricians and Gynæcologists 795

Royal Free Hospital 795

Food Education Society 795

Microchemical Club 795

Functions of Hospitals in War-time 795

National Fitness Council for England and Wales 795

Association of Industrial Medical Officers 795

Spanish Refugees in France 796

Emergency Bed Services 796

A Blood Bank at Manchester 796

The Tuberculosis Service in War time 796

Lectures in Hospital Administration 772

NOTES, COMMENTS AND ABSTRACTS

Good Quality in Medical Care By J Rosslyn Earp M R C S 798

Street Accidents 798

Tuberculous Peritonitis 799

Treatment of Fractures in Cairo 799

Fulmars and Psittacosis 799

True Cysts of the Pancreas 800

Constructive Health Book 800

Mental Treatment in Ireland 800

Filarial Blinding in East and Central Africa 801

Psychological Factors in Rheumatic Disorders 802

Subjective Experience of a Cerebral Tumour 802

Appointments—Vacancies 796

Medical Diary 797

Births Marriages, Deaths 797

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CONTENTS

SECTION I
THE HISTORY

CHAP.
1. THE SIX MAJOR SYMPTOMS
2. THE SIX MAJOR SYMPTOMS (*contd.*)
3. MINOR SYMPTOMS
4. THE AUXILIARY HISTORY

SECTION II
PHYSICAL EXAMINATION OF THE CHEST

5. INSPECTION
6. PALPATION
7. PERCUSSION
8. AUSCULTATION

SECTION III
SPECIAL INVESTIGATIONS

9. THE SPUTUM
10. BLOOD EXAMINATIONS—PLEURAL FLUID
11. RADIOLOGY OF THE CHEST
12. SPECIAL DIAGNOSTIC METHODS

SECTION IV
DISEASES OF THE RESPIRATORY TRACT

13. THE NOSE
14. THE MOUTH
15. THE LARYNX
16. THE TRACHEA AND BRONCHI

SECTION IV
(*continued*)

CHAP.
17. ASTHMA
18. BRONCHIECTASIS
19. TUMOURS OF THE BRONCHI
20. CHEST INJURIES — DISORDERS OF THE PULMONARY CIRCULATION
21. EMPHYSEMA
22. COLLAPSE OF THE LUNG
23. PNEUMONIA
24. BRONCHO-PNEUMONIA
25. PNEUMONITIS
26. LUNG ABSCESS
27. PULMONARY TUBERCULOSIS
28. PULMONARY TUBERCULOSIS (*contd.*)
29. TREATMENT OF PULMONARY TUBERCULOSIS
30. NON-TUBERCULOUS CHRONIC LUNG INFECTIONS
31. FIBROSIS OF THE LUNG
32. THE PLEURA
33. "PLEURISY"
34. EMPYEMA
35. TUMOURS OF THE PLEURA
36. THE MEDIASTINUM
37. THE DIAPHRAGM

INDEX

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No 6032 LONDON SATURDAY, APRIL 8, 1939 CCXXXVI

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ADDRESSES AND ORIGINAL ARTICLES

The Listerian Idea in 1939 By Prof RENÉ LERICHE F R C S 803
Potassium and the T Wave of the Electrocardiogram By W A R THOMSON M D (*illus*) 808
Indications for Adhesion Cutting in Artificial Pneumothorax By J SMART M R C P (*illus*) 812
Illness Occurring in Contacts with Confluent Smallpox By F T CONYBEARE F R C P 813
Extensive Thrombosis after Pentothal Sodium Injection By R T PAYNE F R C S 816
Femoral Hernioplasty By E M COWELL F R C S (*illus*) 816
Postpartum Necrosis of the Anterior Pituitary By H L SHEEHAN, M D and R MURDOCH, M B 818
A Rapid Tuberculin Test By HALLIDAY SUTHERLAND, M D 820
Bacillus Pyocyaneus Infections and Sulphanilamide By W STEWART M D, and T BATES, F R C S (*with chart*) 820
Venous Hum in Bilharzial Cirrhosis of the Liver By M R KINAWY M R C P (*illus*) 821

MEDICAL SOCIETIES

Royal Society of Medicine Section of Medicine Pneumonia 822
North of England Obstetrical and Gynæcological Society A R P and Maternity Work 824

REVIEWS AND NOTICES OF BOOKS

Control of the Circulation of the Blood By Prof R J S McDowall M D and G L Malcolmson M D 825
Vitamins and Vitamin Deficiencies By Leslie J Harris D Sc 825
Physical Diagnosis By Prof R C Cabot M D and F D Adams, M D 825
Treatment by Manipulation in General and Consulting Practice By A G Timbrell Fisher F R C S 826
Personality Development and Social Control By Ira S Wile M D 826
Refraction of the Eye By A Cowan, M D 826
Workbook in Elementary Diagnosis By Prof L Clendening 826
Le duodénum Atlas de radiologie clinique By P Cottenot Max Lévy and Ed Chérigié 826

LEADING ARTICLES

ECONOMY IN HEALTH INSURANCE 829
GLANDULAR FEVER 830
ON CONSCRIPTION 830

ANNOTATIONS

The Tuberculous Patient 831
Cardiac Insufficiency and Acute Nephritis 832
Blood transfusion in Infants 832
Factor Analysis in Psychology and Medicine 832
Hæmorrhage after Prostatectomy 833
Periarteritis Nodosa 833
A Festschrift for Harvey Cushing 833
Divinyl Ether for the Young 834
The Surgery of Ureterocele 834
Albert Fraenkel 834
Prophylaxis of Whooping cough 835

NEW INVENTIONS

Improved Uterine Dilators By VICTOR BONNEY F R C S and A C BARKER, M B (*illus*) 827
New Colostomy Appliances By J L F KNIGHT M R C S (*illus*) 827

SPECIAL ARTICLES

The Medical Emergency in China By H BALME M D 836
Antitoxins for War Emergency 839
Bucharest National Insurance—The Sale of Narcotics 842
United States of America Fertility of Parents as Measured by Loss of Offspring 843
THE LANCET 100 Years Ago 859

GRAINS AND SCRUPLES

From an Onlooker—II 840

PUBLIC HEALTH

Progress in Ireland—A Domiciliary Service for Infants 844
Infectious Disease in England and Wales 851

LETTERS TO THE EDITOR

Anæsthesia in War-time (Dr R Jarman D A) 845
Ocular Manifestations of General Disease (Dr F Parkes Weber) 846
The Shipway Machine (Dr R Blair Gould) 846
Abridged Life Tables (Mr A Bradford Hill, D Sc) 846
Insulin Shock and Convulsion Therapy in the Tropics (Drs H Hoff and J A Shaby) 846
Tumours in Twins (Dr M T Macklin) 847
Storage of Radium in War-time (Mr G F Stebbing F R C S) 847
Closed Treatment of Compound Fractures (Dr J Trueta Raspall) 847

OBITUARY

Colonel Thomas Edward Knowles Stansfield M B (*with portrait*) 852
William Lawrence Wright Marshall M R C S 852

PARLIAMENT

On the Floor of the House 848
From the Press Gallery The Camps Bill—Local Government Superannuation—Medical Advisory Committee on Cancer—Scottish Board of Control 849
Question Time A R P First-aid Posts in London—Deaths following Use of Convalescent Measles Serum—Bacteria Content in Undesignated Milk 850

MEDICAL NEWS

University of Cambridge 853
University of London 853
University of Aberdeen 853
Royal College of Physicians 853
Central London Throat, Nose, and Ear Hospital 853
Harveian Society 853
Royal Dental Hospital 853
Royal Society of Medicine 853
Ophthalmological Society 853
Central Midwives Board 854
Central Association for Mental Welfare 854
Carey Coombs Memorial Fund 854
Britain at the New York Fair 854
Edinburgh Royal Infirmary 854
Charterhouse Rheumatism Clinic 854

NOTES, COMMENTS AND ABSTRACTS

Principles of Medical Research Cause and Cure By L S MICHAELIS M D 856
Detection of Toxic Gases in Industry 857
Old Medical Books and MSS 857
Grains and Scruples 857
Researches on Food 858
Diphtheria Inoculation of Probationer Nurses 858
A Warning 858
Medical Diary 854
Births Marriages Deaths 854
Vacancies 855
Appointments 855

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CONTENTS

CHAP
I. THE AIM OF THE STATISTICAL METHOD
II. SELECTION
III PRESENTATION OF STATISTICS
IV. THE VARIABILITY OF OBSERVATIONS
V CALCULATION OF THE STANDARD DEVIATION
VI PROBLEMS OF SAMPLING: AVERAGES
VII FURTHER PROBLEMS OF SAMPLING: PROPORTIONS
VIII FURTHER PROBLEMS OF SAMPLING: DIFFERENCES
IX FURTHER PROBLEMS OF SAMPLING χ^2
X. FURTHER EXAMPLES AND DISCUSSION OF χ^2
CHAP
XI THE COEFFICIENT OF CORRELATION
XII CALCULATION OF THE CORRELATION COEFFICIENT
XIII LIFE TABLES AND SURVIVAL AFTER TREATMENT
XIV COMMON FALLACIES AND DIFFICULTIES
XV FURTHER FALLACIES AND DIFFICULTIES
XVI. FURTHER FALLACIES AND DIFFICULTIES
XVII CALCULATION OF STANDARDISED DEATH-RATES
XVIII GENERAL SUMMARY AND CONCLUSIONS
DEFINITIONS
INDEX

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No 6035 LONDON SATURDAY, APRIL 29, 1939 CCXXXVI

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ADDRESSES AND ORIGINAL ARTICLES

Infantile Diarrhoea By J M Smellie, F R.C P (*with charts*) 969
Specific Immunity in Acute Staphylococcal Osteomyelitis By F C O Valentine M R C P, and E C B Butler, F R.C.S (*with charts*) 973
Fixation of the Osteoarthritic Hip by Nailing By B H Burns F R.C S (*illus*) 978
Nail Fixation of Osteoarthritic Hip Without Exposure of Joint By H Bailey, F R C.S, and H J Burrows, F R C.S (*illus*) 980
Primary Peritonitis in Scarlet Fever Treated with Sodium Salt of M & B 693 By H Stanley Banks, M D (*with chart*) 983

CLINICAL AND LABORATORY NOTES

Lymphopathia Venereum Treated with M & B 693 By K Vigors Earle, M D 985
Intestinal Atresia with Torsion of Meckel's Diverticulum By Frank Forty, F R C S (*illus*) 986
"Hypo HCl" Treatment of Scabies By Surg Lieut W S Parker M B 987

MEDICAL SOCIETIES

Ophthalmological Congresses in London Ophthalmological Society—International Association for Prevention of Blindness—International Organisation against Trachoma 987
Medical Society of Individual Psychology Escape Into Activities 990

REVIEWS AND NOTICES OF BOOKS

The Medical Annual Edited by H Letheby Tidy F R C P, and A Rendle Short, M D 991
Health and Nutrition in India By N Gangulee 991
Rheumatism By B S Nissé M R C P 992
Atlas de phonocardiographie clinique By A Caló 992
Aids to Forensic Medicine and Toxicology By J H Ryffel B Ch 992
Yearbook of Dermatology and Syphilology Edited by Prof Fred Wise, M D, and Marion B Sulzberger M D 992

LEADING ARTICLES

Nursing Prospects 993
Statistics of Appendicitis 994
Defects of Workmen's Compensation 995

ANNOTATIONS

Psychiatric Clinic at Guy's 996
Aspiration Biopsy of the Liver 996
Natural Science at Dundee 997
A Regulator of Metabolism 997
The Croydon Typhoid Claims 998
Vitamin F 998
Temperature Measurement in Artificial Pyrexia 998
The Budget 999
Cerebral Defects and Cæsarean Section 999
Lady Aberdeen 999
Orthopædics in South Africa 999

GRAINS AND SCRUPLES

From an Onlooker—V 1002

NEW INVENTIONS

Director for the Insertion of Smith Petersen Nails (C F Kindersley F R C S) (*illus*) 990

SPECIAL ARTICLES

Medicine and the Law Tuberculosis Not an Accident of Employment—Adjourned Inquests and Criminal Proceedings 1000
Paris Safety, National and Personal—The Spanish Refugees 1000
Ireland Ishbel, Lady Aberdeen 1001
Infectious Disease in England and Wales 1008

The Lancet 100 Years Ago 1004

LETTERS TO THE EDITOR

Blood and Vulcanite (Dr L Cole) 1005
Femoral Hernioplasty (Mr K Heritage, F R C S) 1005
Therapy by Laymen (Dr C Allen) 1005
Intussusception (Mr C MacLeod, F R C S) 1006
Sterilisation of Dressings (Dr F G T Liddell, F R.S) 1006
Is Radiology a Specialty? (Dr D Jennings) 1007
Medicines and the Budget (Mr F C Goodall, Ph C) 1007
Mental Nursing (Dr W J T Kimber) 1007
The Art and the Science 1008

PARLIAMENT

On the Floor of the House 1009
From the Press Gallery The Supply of Nurses—Conscription—The Budget—Control of Casualty Services 1009
Question Time Women Aliens as Hospital Nurses—Supplies of Milk to Necessitous Children in Lancashire—Fracture Clinics—Corporal Punishment in Prisons—Medical Expenses and Income-tax—Vaccination as a Condition of Employment—Shale-dust and Silicosis 1014

OBITUARY

Alfred Carleton Williams, M R C S 1015
Francis Alexander Barton M R C S 1015
Robert Percival Langford Jones M B 1015

MEDICAL NEWS

University of Glasgow 1016
University of Aberdeen 1016
University of Manchester 1016
Gresham College 1016
Ophthalmologists at Home 1016
Hospital for Sick Children Great Ormond Street 1016
Postgraduate Course at Zürich 1016
Tuberculosis Demonstration 1016
British Dental Association 1016
Ophthalmological Society of the United Kingdom 1016
British Postgraduate Medical School 1016
Tuberculosis in Industry 1016
Postgraduate Courses in Tuberculosis 1017
German Radiological Society 1017
King's College Hospital 1017
Empire Rheumatism Council 1017
Society for Relief of Widows and Orphans of Medical Men 1015

NOTES, COMMENTS, AND ABSTRACTS

Deficiency Diseases in Kashmir By D C Wilson M R C P (*illus*) 1019
Chemotherapy of Gonorrhœa 1021
Protection against Industrial Disease 1021
Statistics of Infantile Paralysis 1021
A Hospital in Jerusalem 1022
The Climate of Madeira 1022
Structure and Function in the Brain 1022
Family Doctor Benefit 1022
The Home Ambulance Service 1022
An All-glass Atomiser 1022

Appointments 1017
Vacancies 1017
Medical Diary 1018
Births Marriages Deaths 1018

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No 6036 LONDON SATURDAY, MAY 6, 1939 CCXXXVI

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ADDRESSES AND ORIGINAL ARTICLES

The Microglia By Pío del Río Hortega, M D 1023
Infantile Diarrhœa By J M Smellie, F R C P (*concluded*) 1026
Hæmorrhage in Jaundice By C F W Illingworth, F R C S E (*with charts*) 1031
Sodium and Chlorine Retention without Renal Disease By E N Allott, F R.C.P 1035
Trendelenburg's Operation for Pulmonary Embolism. By Ivor Lewis, M S (*illus*) 1037

CLINICAL AND LABORATORY NOTES

Herpes Febrilis in Lobar Pneumonia By J A Montgomery, M D 1041
Dermatitis and Stomatitis in Pneumonia Treated with M & B 693 By Eli Davis, M R.C P 1042

MEDICAL SOCIETIES

Medico Legal Society British Workmen's Compensation Acts 1043
Tavistock Clinic Neurophysiology and Psychology 1044
Manchester Medical Society Cancer of the Breast 1045

REVIEWS AND NOTICES OF BOOKS

Recent Advances in Medicine Clinical, Laboratory, Therapeutic By G E Beaumont, F R C P, and Prof E C Dodds, M.D 1046
Analysis of Parergasia By Gladys C Terry and T A C Rennie, M D 1046
Aids to Public Health By L Roberts, M D, D.P H 1047
Über die Liebe By Dr med H von Hattingberg 1047
Doctors in Shirt Sleeves Edited by Sir Henry Bashford, F R C P 1047
British Journal of Surgery 1048

LEADING ARTICLES

Biochemistry of Malignant Growth 1049
Hæmorrhage in Jaundice 1050
The Microglia 1051
Students and Military Service 1051

ANNOTATIONS

Swimming and Otitis Media 1052
Cardiovascular Changes in Myxœdema 1052
Milk borne Scarlet Fever 1053
The Royal Academy, 1939 1053
Methæmoglobinæmia after Sulphanilamide 1053
Subcutaneous Implantation of Desoxycorticosterone 1054
Functional Disorganisation of the Kidney 1054
Cyclopropane 1055
Cerebral Damage from Carotid Ligature 1055
Operating in a Respirator 1056
Epanutin and the Gums 1056

PUBLIC HEALTH

The *Evacuation Plans*—L C C Hospitals and Medical Services—First aid Posts in London 1064
Infectious Disease in England and Wales 1070

GRAINS AND SCRUPLES

From an Amateur Journalist—I 1065

PANEL AND CONTRACT PRACTICE

Health Insurance in London 1066

NEW INVENTIONS

Forceps for Inserting Radium into the Cervix (R R Morrison, M B, D M R.E) (*illus*) 1048

SPECIAL ARTICLES

The Wider Aspects of Nutrition B M A Conference 1057
Paris Appendicitis and Serotherapy 1059
United States of America The Doctor and the Sociologist 1060
Vienna Prof Ernst Finger—Goitre in Austria 1061
Medicine and the Law High Court rejects Medical Certificate—Dentist's Successful Appeal 1061
Social Implications of Medical Discoveries Effects on Hospitals and Medical Practice 1063
The Lancet 100 Years Ago 1066

LETTERS TO THE EDITOR

Diphtheria—a Preventable Disease (Drs A A Cunningham and R. M Campbell) 1067
Intussusception (Mr D Owen Davies F R C S, Mr S T Irwin F R C S) 1067
Aneurysm of Popliteal Artery (Mr D Robb, F R C S) 1068
To Worry or to Forget ? (Dr P A Galpin) 1068
Air raid Casualties in *London* 1069
An Improper Paragraph 1070

OBITUARY

Sir Robert Bolam F R C P (*with portrait*) 1076
Norman James Macdonald, M R C S 1077

PARLIAMENT

On the Floor of the House 1071
Compulsory Military Training 1079
Question Time Fracture Clinics—Biological Research and Defence Camouflage—Dating of Canned Foods—Probationer Nurses and Examination Fees—Report of the Committee on Abortion 1072

MEDICAL NEWS

University of Cambridge 1073
University of London 1073
Society of Apothecaries 1073
University of Wales 1073
Queen's University, Belfast 1073
Royal College of Physicians of London 1073
Scottish Conjoint Board 1074
Hospitals Day 1074
Charterhouse Rheumatism Clinic 1074
Medical Sickness Annuity and Life Assurance Soc 1074
Kensington Medical Society 1075
Guy's Hospital 1075
Royal Society of Arts 1075
Research in Encephalitis 1075
London (R F H) School of Medicine for Women 1075
Road Accidents in Ireland 1075
Scottish Association for Mental Hygiene 1075
Patent Medicines and the Budget 1075
Congress for Life Saving 1075
National Fitness Council for England and Wales 1075
Royal Faculty of Physicians and Surgeons of Glasgow 1075
Devon and Exeter Cancer Fund 1075
Radiesthesia 1075
Royal Medical Benevolent Fund 1062
The Minister of Health and Social Services 1079

NOTES, COMMENTS AND ABSTRACTS

The Proteins of the Cancer Cell 1080
Chemotherapy in Experimental Tuberculosis 1081
Feminine Physiology in the Far East 1081
Pectin in Diarrhœa 1082
Opium in Manchuria 1082
Dermatology and Folklore 1082
Imprisonment for Sex Offences 1082
Medical Diary 1077
Appointments 1078
Vacancies 1078
Births Marriages Deaths 1079

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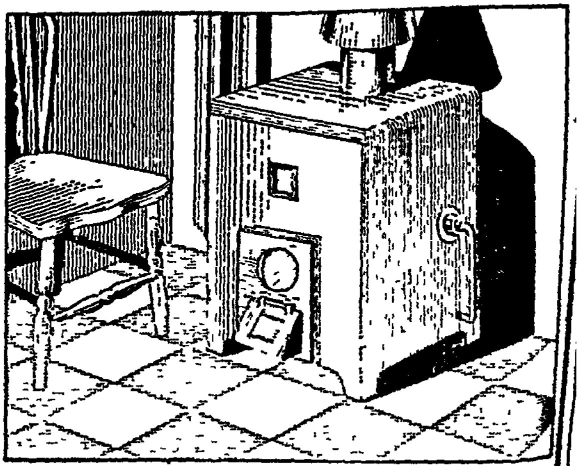

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No 6037 LONDON SATURDAY, MAY 13, 1939 CCXXXVI

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ADDRESSES AND ORIGINAL ARTICLES

Clinical Sense and Clinical Science By Prof J A Ryle, F R C P 1083
Control of *Staphylococcus aureus* in an Operating theatre By E A Devenish, F R C S, and Prof A A Miles, F R C P (*illus*) 1088
Abdominal Resection for Rectal Cancer By E G Muir, F R C S (*illus*) 1094
Specific Gravity of the Blood in Pneumonia By J J Elphinstone M B and E M Ward, M.D 1007
Pneumococcal Meningitis Treated with M & B 693 By R C MacKeith, B M, and G Oppenheimer M R C.S 1099
A Fatal Case of Pneumococcal Meningitis Treated with M & B 693 By K May, M R C P 1100
Pneumococcal Meningitis Treated with M & B 693 By P S Raman, L.M.S (*with chart*) 1101
Displaced Ribs By W A Ball, M B 1102

MEDICAL SOCIETIES

Royal Society of Medicine Section of Laryngology Complications of Intranasal Surgery 1103
Ophthalmia Neonatorum in Great Britain 1127

REVIEWS AND NOTICES OF BOOKS

Spinal Anesthesia By L H Maxson, M D 1105
A Synopsis of Medicine By H Letheby Tidy F.R C P 1105
Principles of Medical Statistics By A Bradford Hill, D Sc 1105
Recent Advances in Chemotherapy By G M Findlay, M D 1106

LEADING ARTICLES

Wernicke's Encephalopathy and Vitamin B_1 1107
Progress against Pneumococci 1107
Infections of the Hand 1108

ANNOTATIONS

Preventive Maternity Work 1110
Postoperative Pulmonary Complications 1110
Uniovular Twins of Different Sex 1111
Wages During Sickness 1111
Histological Changes in Epilepsy 1112
Blood Concentration in Pneumonia 1112
Arithmetic Guided by Logic 1112
Ophthalmologists in Australia 1112
Psychosomatic Medicine 1113

LETTERS TO THE EDITOR

Psychotherapy by Laymen (Dr Hilda Weber) 1125
Illness in Smallpox Contacts (Dr E T Conybeare) 1125
Sodium and Chlorine Retention (Dr F Murgatroyd) 1125
Biochemistry of Malignant Growth (Dr A T Forbes) 1126
Is Radiology a Specialty ? (Dr J Hull) 1126
Medical Celibacy (Dr B H Kirman) 1126
Tolerance of Phenol Vapour (Prof R Tanner Hewlett, F R C P) 1126

NEW INVENTIONS

Radon seed Introducer (E S Lee, F R C S) (*illus*) 1106

SPECIAL ARTICLES

Recent Work on the Trigeminal Nerve (Dr Wilfred Harris) 1114
Medicine and the Law Doctor and Speed Limits—Heart Disease and Workmen's Compensation 1116
Scotland Sir David Wilkie's Bequests—Coördination of Hospital Services 1117
Standard for Chorionic Gonadotrophin 1117
Doctors and the Prevention of War 1127
Infectious Disease in England and Wales 1127
The Lancet 100 Years Ago 1131

GRAINS AND SCRUPLES

From an Amateur Journalist—II 1118

OBITUARY

Marguerite Kettle, M R.C S 1128

PARLIAMENT

On the Floor of the House 1120
From the Press Gallery Military Training Bill—Liability of Local Authorities—Midwives and the Motor-licence Duty—Road Accidents—The Camps Bill—Collections for Voluntary Hospitals 1120
Question Time Slum clearance Expenditure—Water Pollution by Gulls—Iron-ore Dust and Silicosis—Typhoid at Nottingham—Rheumatism among Mineworkers 1123

MEDICAL NEWS

University of Cambridge 1132
University of London 1132
University of Dublin 1132
University of Edinburgh 1132
Royal College of Physicians of Edinburgh 1132
Research in Tropical Medicine 1132
Committee against Malnutrition 1132
St John's College, Cambridge 1132
London Jewish Hospital Medical Society 1132
West London Medico Chirurgical Society 1132
Royal Microscopical Society 1132
Silicosis Conference 1132
Indian Medical Service 1132
Left Book Club Medical Group 1132
Dentists and National Service 1132
Sanitary Problems in an Emergency 1132
Fellowship in Cancer Research 1133
London County Council 1133
Medical Aspects of Delinquency 1133
Bristol's New Mental Hospital 1133
Scottish Hospitals in War-time 1133
British Postgraduate Medical School 1133
Nurses in War time 1133
Royal Society of Tropical Medicine and Hygiene 1117
Postgraduate Courses in Germany 1127
Finchley's New Health Centre 1131
Florence Nightingale Hospital for Gentlewomen 1135

NOTES, COMMENTS AND ABSTRACTS

High and Low Enemas By O A Marxer and S W Patterson, F R C P (*illus*) 1136
Narcotic Abuse in Egypt 1138
Papaverine and the Intestine 1138
Tempora Mutantur 1138

Medical Diary 1133
Appointments 1134
Vacancies 1134
Births, Marriages, Deaths 1135

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No 6038 LONDON SATURDAY, MAY 20, 1939 CCXXXVI

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ADDRESSES AND ORIGINAL ARTICLES

Insulin and Cardiazol Treatment of Schizophrenia By L Meduna, M.D, and B Rohny M.D 1139
Block Dissection for Carcinoma of the Cervix By Aubrey Goodwin F R.C S (*Illus*) 1142
Deficiency of Vitamin B_1 in Hookworm Anæmia By Alan McKenzie, M.B (*with chart*) 1143
The Latter Half of the Life of an Epileptic By Sir Arthur Hall, F R C.P (*Illus*) 1146
Quinine in Myotonia Congenita Its Antagonism to Prostigmin By Lady Briscoe, M B (*Illus*) 1151
A Flexible Gastroscope with Magnetic Control of Objective By Denys Jennings, B M (*Illus*) 1153

CLINICAL AND LABORATORY NOTES

Acute Salpingitis due to *Bacterium choleræ suis* By R Herring, M R.C S, and W F Nicholson, F R C S 1154
Angina of Effort as the Only Symptom of Coronary Thrombosis By Geoffrey Bourne F R C.P (*with charts*) 1155

MEDICAL SOCIETIES

Royal Society of Medicine Section of Psychiatry Drug Addiction 1156

REVIEWS AND NOTICES OF BOOKS

Clinical Pædiatrics The Baby Edited by W. R. F Collis, F R C.P 1158
Electrotherapy and Light Therapy By Prof R Kovács, M D 1158
Die Malaria-Überträger By Dr Fritz Weyer 1158
Rheumatism By H Warren Crowe, M R C S 1158
Handbook of the Vaccine Treatment of Chronic Rheumatic Diseases By the same author 1158
Applied Anatomy By R H Miller M D 1159
Plant Biology By H Godwin Ph D 1159
Control of Conception By R. L Dickinson M D 1159

LEADING ARTICLES

Implementing Public Health 1161
Naturalistic Control of Malaria 1162
Miocene Man 1162
The Psychologist in War-time 1163

ANNOTATIONS

X ray Treatment of Inflammation 1164
The Fate of Transfused Blood 1164
Bacteriological Examination of Water 1164
Coramine in Anæsthetic Emergencies 1165
London University Moving In 1165
Inter related Amino-acids 1165
The Causes of Death 1166
The Burden Neurological Institute 1166
Syphilis, Pregnancy, Arsenic 1166
Air-borne Worm Infections 1167
The Control of Disease 1167

PANEL AND CONTRACT PRACTICE

New Regulations 1173

PUBLIC HEALTH

Health of Scotland in 1938—Transfusion Service in War time 1177
Infectious Disease in England and Wales 1192

NEW INVENTIONS

Apparatus for Intravenous Injection (H Ton, Ph D and W M Millar M B) (*Illus*) 1160

SPECIAL ARTICLES

Heart failure By K Shirley Smith, F R C P 1168
Medicine and the Law Osteopath Described as Doctor—Lessons from Litigation 1170
The Tavistock Clinic Annual Meeting 1171
Paris Blood transfusion in War-time 1172
Norway Legal Restrictions on Psycho-analysis 1173
The Lancet 100 Years Ago 1176

GRAINS AND SCRUPLES

From an Amateur Journal Ist—III 1174

LETTERS TO THE EDITOR

Medical Inspection and Deafness (Dr Phyllis Tookey Kerridge) 1178
Equipment of Industrial Clinics (Dr D Stewart) 1178
Morphine Injection at First aid Posts (Dr P Hamill) 1178
The Treatment of Carbuncles (Dr W H Coupland) 1179
Displaced Ribs (Sir Robert Stanton Woods, F R C.P) 1179
Introducing Hyperpnœa (Dr Raymond Greene) 1179
Daylighting Standards in Workshops (Mr G B J Athoe) 1179
Clinical Sense and Clinical Science 1180

OBITUARY

Edward Wing Twining M R C P (*with portrait*) 1185
Meredith Rountree Whitla L.R C.P 1185
Arthur Wellesley Sandford M.D 1186
Harry Gordon Smith, M B 1186
Arthur Ross Boyd M B 1186
George Herbert Rose Holden M D 1186
William Mabson Gabriel M B 1187
R. J F Danford Thomas 1187

PARLIAMENT

On the Floor of the House 1180
From the Press Gallery The Militia Bill—The Camps Bill 1181
Question Time Cod liver Oil Reserves—Wheat Storage—Typhoid Outbreak at Nottingham—Voluntary-aid Detachments—Disability Pensions—Dietaries in Scottish Prisons—Provision of Pit head Baths 1183

MEDICAL NEWS

University of Cambridge 1187
University of Grenoble 1187
University of Manchester 1187
Royal College of Surgeons of England 1187
Royal College of Surgeons of Edinburgh 1187
Royal Army Medical Corps 1188
Westminster Hospital 1188
People's League of Health 1188
Metropolitan Hospital 1188
The Glasgow University Club London 1188
Tuberculosis in Wales 1188
Medical Officer's Jubilee 1188
Royal Sanitary Institute 1188
Congress of Medical Hydrology 1188
Plymouth City General Hospital 1188
Medicine and Industry in the Tropics 1188
Christie Hospital and Holt Radium Institute 1145
Temporary Hospitals for Scotland 1184

NOTES, COMMENTS AND ABSTRACTS

London's Overgrowth 1191
Diphtheria Immunization 1191
Development in School Life 1191
Psychology and Physiology 1192
Tuberculosis in Dogs and Cats 1192
Rediscovery of Jenner Portrait 1192

Appointments 1189
Vacancies 1189
Medical Diary 1190
Births Marriages Deaths 1190

NEW * RECENT * ADVANCES

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No 6039 LONDON SATURDAY, MAY 27, 1939 CCXXXVI

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ADDRESSES AND ORIGINAL ARTICLES

Bacterial Infection during Intracranial Operations By Prof HUGH CAIRNS F.R.C.S (*illus*) 1193

A Simple Method for Measuring Clot retraction By R G MACFARLANE, M D (*illus*) 1199

Compound Fractures of the Shafts of Long Bones By HENRY POSTON, F R C S I 1201

Climate as a Factor in Epidemic Meningitis in Kordofan By N L CORKILL, M D (*with chart*) 1203

Effect of Follicular Hormone on Menopausal Flushes By BRYAN C MURLESS, F R C S E 1205

Acquired Tolerance of *Pneumococcus* to M. & B 693 By R W ROSS, M R.C S (*illus*) 1207

CLINICAL AND LABORATORY NOTES

Agranulocytosis following Administration of M. & B 693 By M E SUTHERLAND M B (*with chart*) 1208

An Aid to Prosthetic Restorations of the Maxilla after Excision By D GREER WALKER M.B (*illus*) 1209

MEDICAL SOCIETIES

Royal *Society of Medicine* Section of Surgery Surgery in Old Age 1210

Royal Academy of Medicine in Ireland Haemoglobin Estimations 1211

NEW INVENTIONS

Appliance for Controlling Prolapse of the Rectum (G F G BATCHELOR, F R C.S) (*illus*) 1212

REVIEWS AND NOTICES OF BOOKS

The Practice of Medicine By Prof Jonathan C Meakins, M D 1213

Iodine and the Incidence of Goiter By Prof J F McClendon 1213

Schilddrüse Jod und Kropf Klinische und experimentelle Untersuchungen By M Saegesser 1213

Dental Surgery and Pathology By Sir Frank Colyer F R C S, and Evelyn Sprawson M R C S 1213

Modern Surgical Technique By Prof Max Thorek, M D 1214

Refraction of the Eye By C Goulden, F R C S 1214

Yearbook of General Therapeutics Edited by Prof B Fantus, M D, and A L Goldberg M D 1214

Quarterly Journal of Medicine 1214

LEADING ARTICLES

INFECTION AT OPERATION 1215

PURPOSES OF PUNISHMENT 1216

THE PRESENT POSITION OF DENTISTRY 1216

PIGS WORMS AND INFLUENZA 1217

ANNOTATIONS

In Memory of Sir Squire Sprigge 1218

Weak Backs 1218

Story of Medicine Stamp Duties 1218

Cowpox Virus 1219

Plasma Transfusion 1219

Fever in Cardiac Failure 1219

Grading of Carcinomas 1220

Procidentia of the Rectum 1220

Duration of Gestation 1220

War time Duties 1221

Escape 1221

CONTROL OF THE COMMON FEVERS

The Pneumonias Reviewed by Dr ROBERT CRUICKSHANK 1222

SPECIAL ARTICLES

Medicine and the Law Divorce for Insanity Information from Hospitals—Detention under Care and Treatment 1225

Bucharest Pellagra—Uric Acid in the Saliva 1226

United States of America Conference of State Health Officers 1226

Ireland: The Hospital Sweepstakes 1227

Paris A New Institute for Functional Recuperation—Actions for Damages 1227

General Medical Council President's Address 1228

Infectious Disease in England and Wales 1246

THE LANCET 100 Years Ago 1228

GRAINS AND SCRUPLES

From an Amateur Journalist—IV 1230

LETTERS TO THE EDITOR

The Psychologist in Wartime (Sir Arthur Hurst, F R C P) 1232

Equipment of Industrial Clinics (Dr P Ellman) 1232

Insulin Shock and Convulsion Therapy in the Tropics (Dr M V Govindaswamy) 1232

Shortage of Nurses (Dr W B Cosens) 1233

Women on the G M C (Dame Janet Campbell, M D) 1233

Sex incidence of Cancer (Dr Baron Russell) 1233

Blood and Vulcanite (Dr Allen Temple) 1231

Clinical Sense and Clinical Science 1231

Medicine Stamp Duties 1231

OBITUARY

Charles Herbert Fagge F R.C S (*with portrait*) 1235

Ralph Paul Williams, M R C P 1236

F R Townley Clarkson, M R C S 1236

Lt Col Charles Thomas Samman M R C S 1237

PARLIAMENT

On the Floor of the House 1237

Question Time Exporting of Boys—Tuberculosis in Cyprus—Public health Administration in Wales—Pollution of Ullswater—Peckham Health Centre—Mental Deficients and Farm Work—Sale of Secret Remedies 1239

MEDICAL NEWS

University of Oxford 1240

University of Cambridge 1240

Society of Apothecaries of London 1240

London School of Hygiene and Tropical Medicine 1240

National University of Ireland 1240

National Society for the Prevention of Venereal Disease 1240

British Empire Cancer Campaign 1240

International Union against Tuberculosis 1240

Charing Cross Hospital 1240

National Hospital for Diseases of the Heart 1240

University of London 1240

Westminster Hospital 1241

Medical Insurance Agency 1241

Conscription, Evacuation and Casualties 1242

British Empire Leprosy Relief Association 1239

NOTES, COMMENTS, AND ABSTRACTS

A Further Stage in Air-conditioning 1244

A Jewish Symposium 1244

Nutrition in India 1244

Anaesthetist's Equipment in War time (*illus*) 1244

Tuberculosis in Finland 1245

Delirium Tremens 1245

Sterile Marriages 1245

The London Ambulance Service 1246

A Hospital in China Carries On 1246

Births Marriages Deaths 1242

Medical Diary 1242

Appointments 1242

Vacancies 1243

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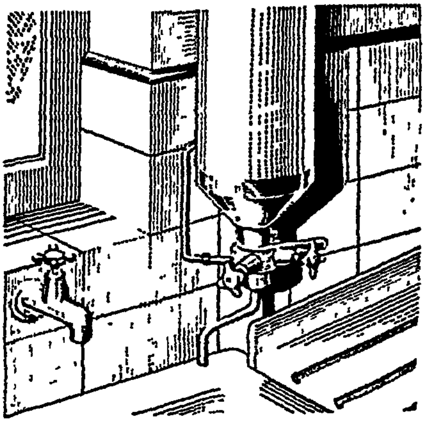

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No 6040 LONDON SATURDAY, JUNE 3, 1939 CCXXXVI

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ADDRESSES AND ORIGINAL ARTICLES

Diagnosis and Treatment of Acute Appendicitis in Children By G GORDON BRUCE, F R.C S (*with diagrams*) 1247
The "Appendix Mass" By R J MCNEILL LOVE, F R C S 1252
Testosterone Propionate Its Effect on the Histology of Prostatic Enlargement in Man By E P SHARPEY SCHAFER, M R C P and R SHACKMAN, F R C S (*illus*) 1254
Prognosis in Acute Nephritis in Childhood By K H TALLERMAN F R C.P, and J H BURKINSHAW, M R C S 1255
The Rôle of Obstruction in Fatal Pulmonary Embolism By Prof ROBIN PILCHER, F R.C S 1257
Autopsy Incidence of Pulmonary Embolism By T H BELT M B 1259
Nicotinic Acid in Endemic Glossitis By I KATZENELLENBOGEN, M D 1260
Long latent Infection with *Plasmodium ovale* becoming Manifest after Yellow fever Vaccination By F MURGATROYD M R C P, G M FINDLAY M D and F O MACCALLUM, M D 1262

CLINICAL AND LABORATORY NOTES

Large Calculi in the Posterior Urethra By A MILLER, F R C S (*illus*) 1263
Bilateral Dislocation of the Hip with Fracture of the Pelvis By R H GARDINER, F R C S E 1265

MEDICAL SOCIETIES

Royal Society of Medicine Section of Urology Radiotherapy in Urology 1265
Royal Medico Psychological Association Recreational Therapy 1267
British Orthopædic Association 1268

REVIEWS AND NOTICES OF BOOKS

Carbon Monoxide Asphyxia By Prof C K Drinker 1269
A Textbook of Histology By Prof E V Cowdry 1269
Handbook of Ophthalmology By Humphrey Neame F R C S, and F A Williamson Noble, F R C S 1269
Internal Medicine Edited by Prof J H Musser M D 1270
Handbuch der Virusforschung Edited by Prof R Doerr Prof C Hallauer and others 1270
Surgery of the Ear Edited by Prof S J Kopetzky, M D 1370

LEADING ARTICLES

THE PULMONARY EMBOLUS 1271
PLACENTAL INFARCTS AND TOXÆMIA 1272
THE VOICE OF NATURE 1273

ANNOTATIONS

Orange Juice for Breast fed Babies 1274
Treatment of Agranulocytosis 1274
Welfare of the Blind 1274
Angina Pectoris and Xanthomatosis 1275
The Insanity Defence 1275
Tuberculin Tests in Cattle 1275
Marvels at the Royal Society 1276
Wood and Bones 1276
The American Submarine Disaster 1277
Technical Requirements of *Pasteurisation* 1277
Aspirin as a Poison 1278
Anæsthetics in War-time 1278
Students and Military Service 1278

SPECIAL ARTICLES

The Birth rate and *Present day Difficulties* By Viscount DAWSON OF PENN F R C P (*with charts*) 1279
General Medical Council Penal Cases reported by the Dental Board—Charges against Medical Practitioners (*concluded*) 1281
The Hastings Congress Nursing Services—Otorrhœa in Children 1282
Ireland The Irish Medical Union 1281
United States of America Appendicitis—Motile Spermatozoa Proved Sterile 1285
Barbiturates by Post 1286
Infectious Disease in England and Wales 1287
THE LANCET 100 Years Ago 1289

GRAINS AND SCRUPLES

From Peter Quince—I 1286

LETTERS TO THE EDITOR

The Psychologist in War-time (Dr William Brown) 1288
The Present Position of Dentistry (Dr Martin Rushton, L D S) 1288
First-aid Posts (Lieut-Col J B Scott M B) 1288
Air raid Casualties in London (Drs L Crome, R E W Fisher, and G B Shirlaw) 1289
Heart failure (Dr W N Leak) 1290
Progress against Pneumonia (Dr Paul Gibson) 1290
A National Language for India (Captain E S Gopalan, I M S) 1290

PARLIAMENT

On the Floor of the House 1291
From the Press Gallery Hospital Accommodation for Air-raid Casualties—Evacuation and Public Health—The Medicine Stamp Duties—Medical Students and Military Training 1292
Question Time Finances of Voluntary Hospitals—Evacuation and Epidemics—Panel Doctors' *Surgeries* 1293

OBITUARY

Prof Charles H Mayo, F R C.S (*with portrait*) 1294
Charles Ralph Cooke-Taylor, M.R C S 1295
Donald Rose Paterson, F R C P 1296
Joseph Thompson, M.R.C.S 1296

MEDICAL NEWS

University of Oxford 1296
University of Cambridge 1296
University of London 1296
University of Leeds 1296
Harveian Society 1296
Society of Apothecaries 1296
Royal College of Surgeons 1296
Medicine Stamp Act 1296
King's College Hospital 1297
London Hospital 1297
Faculty of Radiologists 1297
Indian Medical Service 1297
Science and Society 1297
Association of Industrial Medical Officers 1297
National Baby Week 1297
Service Appointment 1297
British Red Cross Society 1297
Streptococcal Sore throat in New York State 1297
Spanish Emigrants 1297
Transfusion of Stored Blood 1280
London and Counties Medical Protection Society 1287

NOTES, COMMENTS, AND ABSTRACTS

Growth of Children in Day schools By JOHN ALLAN (*with charts*) 1300
Time budgets 1301
Oral Therapy in Diabetes 1302
An Osteo arthritic Triad 1302
M D Lausanne 1302
William Turned Guglielmo 1302

Appointments 1293
Vacancies 1294
Medical Diary 1293
Births Marriages Deaths 1293

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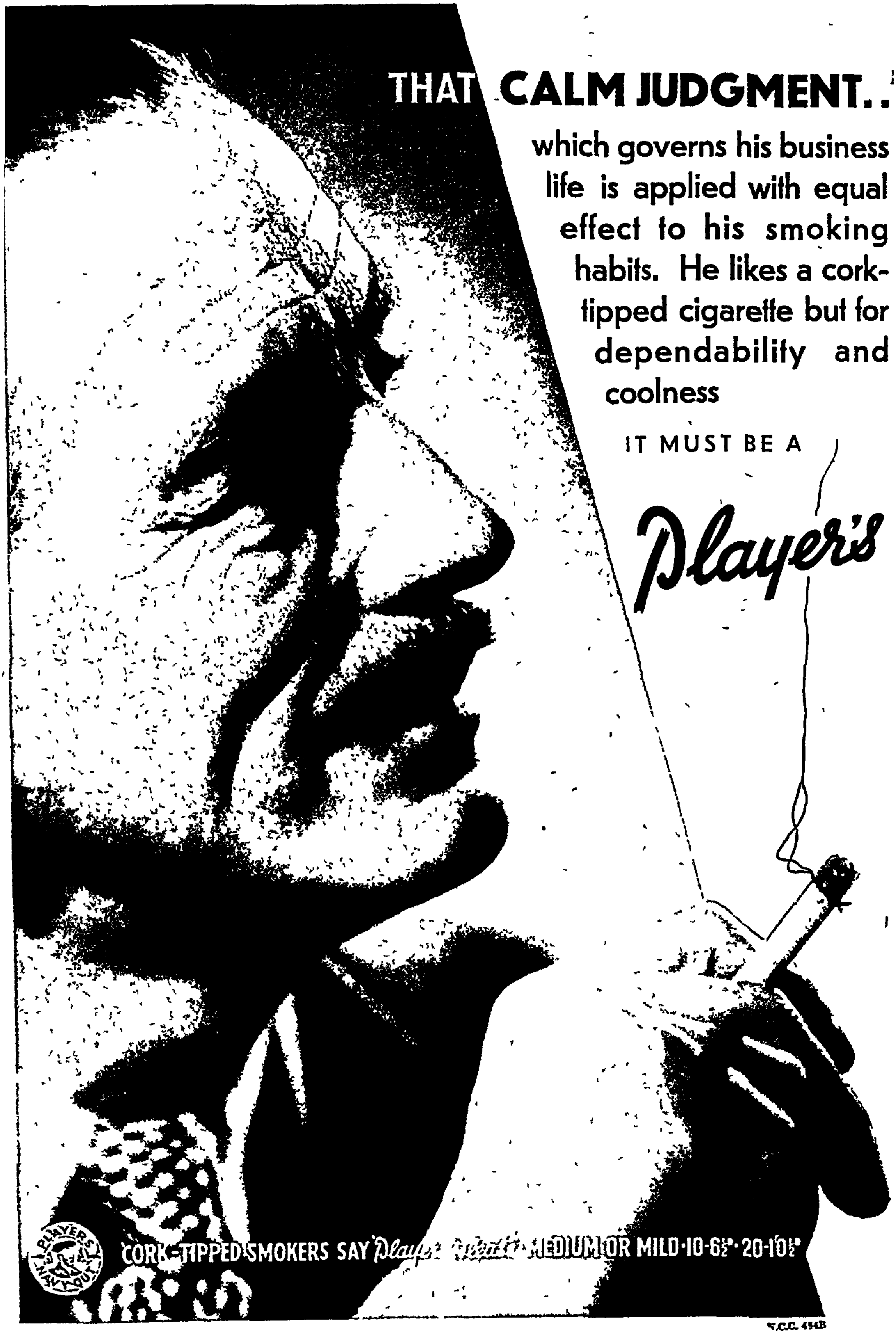

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No 6041 LONDON SATURDAY, JUNE 10, 1939 CCXXXVI

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ADDRESSES AND ORIGINAL ARTICLES

*Left Ventricular Failure By D Evan Bedford F R C P 1303
*Miniature Radiography By B A Dormer M D and K G Collender M (S.A.) I E E 1309
*Ether Treatment of Gall stones Impacted in the Common Duct By B O C Pribram M D 1311
*Experimental Tumorigenesis with Subcutaneous Tablets of Œstradiol By A Lipschutz, M D, and L Vargas Jun, M D 1313
*Treatment of Ulcerative Colitis by Cod liver Oil Retention Enemata By H Gainsborough F R C P 1319
Sulphanilamide in Typhoid Fever By E H R Harries M R C P R Swyer M R C S and N Thompson M B (*with charts*) 1321

CLINICAL AND LABORATORY NOTES

Estimation of Luteal Activity and Early Diagnosis of Pregnancy By A M Hain, D Sc and E M Robertson, F R.C S E (*with chart*) 1324
Bilateral Extra uterine Pregnancy By Major F M Sewell M B . 1325

REVIEWS AND NOTICES OF BOOKS

Epidemiology in Country Practice By W N Pickles M D 1326
Laboratory Manual of Physiological Chemistry By Prof M Bodansky and Prof Marion Fay 1326
Practical Physiological Chemistry By G M Wishart D P Cuthbertson and J W Chambers 1326
Treatise on the Surgical Technique of Otorhinolaryngology By Prof G Portmann Translated by P Viole M D 1326
Treatment in General Practice 1327
Les rhumatismes maladies sociales By R J Weissenbach and F Françon 1327
Yearbook of Obstetrics and Gynecology By Prof J B De Lee M D and Prof J P Greenhill M D 1327
Physiology of Anesthesia By H K Beecher M D 1328
Anatomia del Neonato By F Bellelli 1328

LEADING ARTICLES

EPILEPSY AND DRIVING LICENCES 1320
THE ORIGIN OF FIBROIDS 1329
RADIOGRAPHY FOR ALL 1330
PRIMARY PERITONITIS IN CHILDREN 1330

ANNOTATIONS

Success and Failure 1332
The Consumption of Sugar 1331
Anæmia in Juvenile Rheumatism 1332
The Pelvis in Pregnancy 1332
August Bier as a Pioneer 1333
Inclusion Bodies due to Burns 1333
Health of Iceland 1333
Your Chest Should be Flat 1334
Fees for Medical Reports 1334
Growth Hormones in Insects 1334
Fog and Filthy Air 1335
Inoculation against Whooping-cough 1335
Loss of the *Thetis* 1336

GRAINS AND SCRUPLES

From Peter Quince—II . 1343

NEW INVENTIONS

Vaginal Hot water Applicator (Keith Duff F R C S) (*illus*) 1328

SPECIAL ARTICLES

The Practitioner as Scientist By Lord Stamp, D Sc 1337
Endocrinology of the Prostate 1339
Medicine and the Law 1341
Australasia 1350
Infectious Disease in England and Wales 1344
The Lancet 100 Years Ago 1359

LETTERS TO THE EDITOR

Infectious Practitioners 1345
Sex Incidence of Cancer of the Stomach (Sir Arthur Hurst F R C P) 1345
The Pulmonary Embolus (Mr A J Gardham F R C S) 1345
The Future of Psychotherapy (Dr A. M Spencer) 1346
Infantile Diarrhœa (Dr Ronald Carter) 1346
Sunshine and Meningitis (Dr Douglas Hubble) 1347
Daylighting Standards in Workshops (Dr V I Soothill) 1347
Stored Blood (Prof C R Harington F R S and Prof A A Miles, F R C P) 1348
Placental Infarcts and Toxæmia (Mr R H Paramore F R C S) 1348
Women on the G M C (Mr D Harcourt Kitchin) 1349
Vomiting during Chemotherapy (Lieut Colonel L A P Anderson, F R C S and Dr U C Datta) 1349
Bronchography (Drs R. Viswanathan and P Kesavaswamy) . 1349
Aspirin as a Poison 1349

OBITUARY

Frederick Swinford Edwards F R C S. (*with portrait*) 1351
Jean René Perdrau M B 1351
Frederick William Ellis M D (*with portrait*) 1352
Albert Boyce Barrow, F R C S . 1353

PANEL AND CONTRACT PRACTICE

Scotland . 1350

PARLIAMENT

On the Floor of the House 1353
From the Press Gallery Some Occupational Problems 1354
Question Time Cripples and Evacuation—Bacteriological Analysis of Milk—Diphtheria Immunisation at Accrington 1354

MEDICAL NEWS

University of Oxford 1355
University of London 1355
British Postgraduate Medical School 1356
Joint Tuberculosis Council 1356
Royal Society of Tropical Medicine and Hygiene 1356
Congress on Social Med 1356
Clean Milk in Ireland 1356
League of Nations Pharmacopœial Commission 1356
British Pharmaceutical Conference 1357
National Association for the Prevention of Tuberculosis 1357
Oxford Ophthalmological Congress 1357
Conference on Maternity and Child Welfare 1357

NOTES COMMENTS, AND ABSTRACTS

The Report on Abortion 1360
A Cromwellian Major General . . . 1361
Statistics from the U S . 1362
Pregnancy at Five Years of Age 1362
Gymball Exercises 1362
Advertisement of Cancer Cures . 1362
Medical Diary 1359
Appointments 1358
Vacancies 1358
Births Marriages Deaths 1360

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No 6042 LONDON SATURDAY, JUNE 17, 1939 CCXXXVI

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ADDRESSES AND ORIGINAL ARTICLES

Toxic Goitre With Special Reference to the Disease in Older People By HAROLD COOKSON, M R C P (*illus*) 1363
Deficiency of Vitamin B_1 By J V LANDOR, M R C.P 1368
Lymphocytic Choriomeningitis Isolation of the Virus from the Nasopharynx By F O MACCALLUM, M D, and G M FINDLAY, M D 1370
Sternal Puncture By MARTIN HYNES, M R.C P (*illus*) 1373
Chronic Thyrotoxic Myopathy Cured by Thyroidectomy By F B PARSONS, M R C.P, and R J TWORT, M B (*illus*) 1379

CLINICAL AND LABORATORY NOTES

Intermittent Venous Occlusion a Modified Apparatus By W J KOLFF, Arts (*illus*) 1381
M & B 693 in Malaria By R PAKENHAM WALSH D.M, and A T RENNIE (*with chart*) 1382

MEDICAL SOCIETIES

Royal Society Twin Research 1382
Edinburgh Medico Chirurgical Society Blood chemistry in Burns and Other Surgical Conditions 1383
Faculty of Radiologists Diseases of Bone 1384

REVIEWS AND NOTICES OF BOOKS

The Dysenteric Disorders By P Manson Bahr, F R.C P 1385
Personal Aggressiveness and War By E F M Durbin B A. and J Bowlby B Chir 1385
Richtlinien Practischer Orthopädie By Dr A. Lorenz 1386
Fundamentals of Internal Medicine By Prof W M Yater, M D 1386
Les tumeurs osseuses du nez et des sinus By C E Benjamins 1386

LEADING ARTICLES

ABORTION AND PROFESSIONAL SECRECY 1387
HÆMOGLOBIN ESTIMATION 1388
LYMPHOCYTIC CHORIOMENINGITIS 1388

ANNOTATIONS

Hospital Provident Scheme for London 1390
Suppurative Pericarditis 1390
Drowning 1390
Non tuberculous Mesenteric Lymphadenitis 1391
Goitre in Tipperary 1391
The Watch Below 1391
Russian Birth rates 1392
Elizabeth Garrett Anderson 1392
Inoculation against Tuberculosis 1392
Unrestricted Sale of Patent Medicines 1393
Liberty and Licence 1393
Antihormones 1393
Blood for the Services 1394
The Birthday Honours 1394

SPECIAL ARTICLES

Fear By E MIRA, M D 1395
Medicine and the Law Medical Certificate by Unregistered Practitioner 1395
Sweden Pneumonia 1396
Scotland Metabolism of the Heart 1396
Ireland A Centenary Celebration 1397
Birthday Honours 1398
Bicentenary of Queen Charlotte's 1400
THE LANCET 100 Years Ago 1412

GRAINS AND SCRUPLES

From Peter Quince—III 1399

LETTERS TO THE EDITOR

Sulphanilamide in Typhoid Fever (Dr A H Douthwaite) 1401
The Appendix Mass (Mr C MacLeod F R C S) 1401
The Problem of Medical Literature (Prof R J S McDowall M D) 1401
The Origin of Fibroids (Mr T F Todd, F R C S) 1402
Prophylaxis of Whooping cough (Drs E V Keogh and E A North) 1402
The Practitioner as Scientist (Prof A W Sheen, F R C S) 1403
Closed Treatment of Compound Fractures (Mr A D Wall F R C S) 1403
Activation of Malaria by Vaccines (Dr L Rosenthal) 1403
Chemotherapy and the Eye (Mr R Wien Ph D) 1404

OBITUARY

Arthur Logan Turner F R C P E (*with portrait*) 1405
Francis Robert Seymour, M D 1406
Richard Clarke Cabot, M.D 1406
Alice Marian Denham, M D 1407
The late Mr Boyce Barrow 1407

PARLIAMENT

On the Floor of the House 1408
From the Press Gallery Health Services in the Colonies—Collections for Voluntary Hospitals 1409
Question Time Diphtheria Immunisation in Guernsey—Anti tuberculosis Services in Wales—Sale of Drugs by Unqualified Persons—University Students and Military Service—Medical Examination of Militiamen—The Medicine Stamp Duties 1410

PUBLIC HEALTH

A Minority Programme 1404
Infectious Disease in England and Wales 1404

MEDICAL NEWS

University of Cambridge 1413
University of Sheffield 1413
University of Wales 1413
Queen's University, Kingston 1413
Oxford Graduates Medical Club 1413
Lady Tata Memorial Grants and Scholarships 1413
Park Hospital for Functional Nervous Disorders Oxford 1413
Royal College of Surgeons of England 1413
Papworth Village Settlement 1414
Emergency Ambulance Service 1414
Harveian Society of London 1414
University of Glasgow 1414
St. Bartholomew's Hospital London 1414
West London Medico-Chirurgical Society 1414
A Voluntary Hospital 1414
International Neurological Congress at Copenhagen 1414
Tuberculosis Scholarship 1415
National Union of Students 1415
Cancer Prize 1415

NOTES, COMMENTS, AND ABSTRACTS

A Unique Medical Tract 1417
Labour Lasting 182 Hours 1417
A Woman's Man 1417
Anatomy of Hernia 1417
Short Stories for Doctors 1417
Art and Anatomy 1418
Sulphanilamide in Smallpox 1418
Migration, Environment and Evolution 1418
A Biological Dictionary 1418
Play as Treatment 1418
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Appointments 1418
Vacancies 1418
Births Marriages Deaths 1418

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6043 LONDON SATURDAY, JUNE 24, 1939 CCXXXVI

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ADDRESSES AND ORIGINAL ARTICLES

the Intellect a Func-on? By WILFRED OTTER M S F R S 1410
matomyositis and ogressive Sclero rma By G B WLING F R C P and J GRIFFITHS, Ph D lus) 1424
nosis of Hydatidi m Mole by Biological ssay By MURIEL YCOTT, M.B, and M SMILES, M B 1428
anical Respiration y URSULA BLACK-ELL, M B 1430
t's Spots in Ceylon y L NICHOLLS, M D, d A NIMALASURIYA, R C P (Illus) 1433
e Primary Suppurative Gastritis By RANK HAWKING, D M 1434
pes Occipito collaris y W J TINDALL, D (Illus) 1435
umococcal Meningitis omplicating Pneumococcal Empyema reated Unsuccessfully ith M & B 693 By D AITCHISON, M B 1436
umococcal Meningitis eveloping During reatment with M & B 3 By J H DOWDS, B 1436
umococcal Meningitis reated with Sulphanilylpyridine By H UNLOP F R C P, and LAURIE M.R C S 1437

MEDICAL SOCIETIES

yal Society of Medicine ction of Psychiatry he Chronic Uncertified 1437
ction of Otology Ear isease in the Child 1439
yal Academy of Medicine in Ireland Diurnal ariations in Hæmo lobin 1440
Royal Society of Tropical Medicine and Hygiene The Sulphonamides in Tropical Medicine 1441

REVIEWS AND NOTICES OF BOOKS

Clinical Studies in Psychopathology By H V Dicks, M R C P 1443
Craniocerebral Injuries By D Munro F A C S 1443
The Pneumonias By Prof H A Reimann M D 1444
Common Diseases of the Skin By R C Low F R C P E 1444
Studies of Trauma and Carbohydrate Metabolism By Viggo Thomsen 1444

LEADING ARTICLES

PENSIONS FOR SPINSTERS? 1445
THE MISUNDERSTOOD BOWEL 1446
ASSAY OF SEX HORMONES 1446

ANNOTATIONS

Physiology of the Seaside 1447
Treatment of Toxic Goitre 1447
Flying at Moderate Altitudes 1448
Carcinogens in Heated Animal Fats? 1448
The Nature of Creative Activity 1449
Nitrous Fumes 1449
Questions About Health 1450
A New Transfusion Apparatus 1450
Virus of Japanese Encephalitis in Vitro 1451
The Congress of Genetics 1451
Sale of Patent Medicines 1451
The Lister Institute 1451

PUBLIC HEALTH

Prompt Control—Militiamen with Infections 1462
Infectious Disease in England and Wales 1462

SPECIAL ARTICLES

"Closed" Treatment of War Fractures By JOSEF TRUETA M D 1452
Denmark The Induction of Abortion—The Campaign against Brucellosis 1455
Ireland The Army Medical Service 1456
Indian Medical Service Annual Dinner 1456
Medicine and the Law Inquest Verdicts and Civil Liabilities—Electronic Reactions and Diphtheria 1457
THE LANCET 100 Years Ago 1467

GRAINS AND SCRUPLES

From Peter Quince—IV 1458

LETTERS TO THE EDITOR

Chemotherapy and the White Cells (Dr J W Crofton) 1460
The Problem of Medical Literature (Mr G A Lloyd) 1460
The Origin of Fibroids (Dr J F Brailsford) 1461
Sex incidence of Cancer of the Stomach (Dr B Russell) 1461
The Unregistered Specialist (Dr L Sutherland Rawlings) 1461
Unorthodox Etymology 1462

OBITUARY

Sir John Baker, M D . 1468
Colonel David Waters Sutherland F R.C.P, I M.S 1468
William Henry Neale, M D 1468

PARLIAMENT

On the Floor of the House 146
From the Press Gallery Evacuation of Hospitals—Civil Defence Bill 1464
Question Time Militiamen Standards Tests and Records—Students and Military Training—Civil Nursing Reserve—Medical Needs of Unemployed Persons—Port Health Authorities—Rheumatism in Children—Sale of Drugs 1465

MEDICAL NEWS

University of Oxford 1469
University of Cambridge 1469
University of Liverpool 1469
University of Glasgow 1469
Royal College of Surgeons of England 1469
Milk for Mothers and Young Children 1469
Welsh National School of Medicine 1470
Medical Department Admiralty 1470
St.John s Hospital Dermatological Society 1470
Papworth Village Settlement 1470
A Russian Pharmacopœia 1470
Service Prizes 1470
Mental Hygiene Congress 1470
Research in Stockholm 1467

NOTES COMMENTS, AND ABSTRACTS

Plant Genetics and Human Welfare By Prof R RUGGLES GATES D.Sc., F R S 1472
Maternal Supervision in Rural America 1475
A Catalogue of Medical Books 1475
Uric Acid in the Saliva 1476
New Preparations Flavogel—Dimol Laxatives 1476
Medical Diary . 1470
Appointments 1471
Vacancies 1471
Births Marriages Deaths 1476

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CONTENTS

SECTION I
THE HISTORY

CHAP.
1. THE SIX MAJOR SYMPTOMS
2. THE SIX MAJOR SYMPTOMS (*contd.*)
3. MINOR SYMPTOMS
4. THE AUXILIARY HISTORY

SECTION II
PHYSICAL EXAMINATION OF THE CHEST

5. INSPECTION
6. PALPATION
7. PERCUSSION
8. AUSCULTATION

SECTION III
SPECIAL INVESTIGATIONS

9. THE SPUTUM
10. BLOOD EXAMINATIONS—PLEURAL FLUID
11. RADIOLOGY OF THE CHEST
12. SPECIAL DIAGNOSTIC METHODS

SECTION IV
DISEASES OF THE RESPIRATORY TRACT

13. THE NOSE
14. THE MOUTH
15. THE LARYNX
16. THE TRACHEA AND BRONCHI

SECTION IV
(*continued*)

CHAP
17. ASTHMA
18. BRONCHIECTASIS
19. TUMOURS OF THE BRONCHI
20. CHEST INJURIES — DISORDERS OF THE PULMONARY CIRCULATION
21. EMPHYSEMA
22. COLLAPSE OF THE LUNG
23. PNEUMONIA
24. BRONCHO-PNEUMONIA
25. PNEUMONITIS
26. LUNG ABSCESS
27. PULMONARY TUBERCULOSIS
28. PULMONARY TUBERCULOSIS (*contd.*)
29. TREATMENT OF PULMONARY TUBERCULOSIS
30. NON-TUBERCULOUS CHRONIC LUNG INFECTIONS
31. FIBROSIS OF THE LUNG
32. THE PLEURA
33. "PLEURISY"
34. EMPYEMA
35. TUMOURS OF THE PLEURA
36. THE MEDIASTINUM
37. THE DIAPHRAGM

INDEX

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THE REHABILITATION OF THE INJURED WORKMAN*

WITH SPECIAL REFERENCE TO THE WORKMEN'S COMPENSATION ACT

By Donald Stewart, M D Edin M R C P E

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"It has been generally recognised that there is a strong case for review of various provisions of the existing (Workmen's Compensation) Acts in the light of modern ideas and conditions '

This statement prefaced the Prime Minister's announcement in June, 1938, that a royal commission was to be set up by the Government to inquire generally into the working of the present system of workmen's compensation in the light of modern conditions and knowledge Workmen s compensation law has given rise to much controversy throughout the country within recent years The House of Commons *frequently* has *before* it private members' bills advocating some alteration in the present laws, and two separate government committees have been set up to investigate points in connexion with the working of the Act, a departmental committee on "certain questions arising under the Workmen's Compensation Act," set up in 1935 published its report in January, 1938, and the interdepartmental committee "on the rehabilitation of persons injured by accidents," which was formed in April, 1936, published an interim report in May, 1937, and its final report is expected during 1939 And, as already stated, a royal commission has now been appointed, the terms of reference of which have recently been announced by the Prime Minister

The question of monetary compensation for industrial injuries is one of complexity not only on the administrative and legal side but also from the medical point of view The present laws have a definite bearing on the clinical course of many compensation cases, on their duration, on the degree of incapacity, and on their eventual recovery (It has to be remembered that the Workmen's Compensation Act applies to certain occupational diseases also "as if the diseases were a personal injury by accident" but this paper is limited to the Act as it affects injury in the surgical sense) In many cases recovery and rehabilitation are definitely retarded as a result of the present laws, and in relation to that contention the *following* paragraph, taken from the report of the B M A committee on fractures (1935), is perhaps of interest "The Workmen's Compensation Acts, although designed to protect the workman, have in many cases played a powerful part in prolonging his disability, in *delaying* his return to work, and, on occasions, in converting him into a permanent invalid "

Within recent times there has been criticism of the part played by the medical profession in this matter Such criticisms may be true in certain instances, particularly with regard to the lack of organised treatment of fractures and other industrial injuries It is not my intention however to discuss treatment on this occasion, but to show, from personal experience, that much of the doctor's work today which has to do with the rehabilitation of the injured workman is being actively antagonised by the present legislation in this country

INCIDENCE OF COMPENSABLE INDUSTRIAL INJURIES

The aggregate number of persons coming within the provisions of the Acts who were *employed in* the seven great groups of industries (mines, quarries, railways, factories, docks, construction, and shipping) in which returns are called for from employers by the Government was 7,606,060 in 1936 and of these *461,557* were compensation *cases During 1937* the number of compensable factory accidents reported to the Home Office was 193,542 of which 903 occurred in a group of some 12,000 workers in the midlands under my medical care (A reportable accident is one "which is either fatal or disables the workman for more than three days from earning full wages for the work at which he was employed ") Careful observation was made of all these cases and, during the year, 3868 separate examinations for compensation purposes were carried out by the medical staff This work has a significant bearing on the rehabilitation of injured employees By keeping a close watch on progress the industrial doctor is able to regulate the return to work, and because of his intimate knowledge of the man's job and of his financial affairs, and by continued contact with the man himself, this part of industrial medicine becomes a link in the chain of rehabilitation the significance of which is now becoming more fully realised in the country

COST OF COMPENSATION

During 1936 the total amount of compensation paid in the seven great groups of industries already referred to was £6,447,937 † This figure represents only the amount paid to workmen or their dependants and is not the total charge on these industries in respect of compensation An additional charge—e g , administrative expenses and medical and legal costs—brings the figure, according to the statistical branch of the Home Office, to about £8 000,000 It is estimated by the Home Office also that the total charge to all industries and employments under the Act—i e , including industries outside the seven groups—is something approaching £12,500 000 Finally, the total cost of an accident is considerably greater than the sum paid in compensation and these charges just mentioned For instance, there is the cost of time lost by injured employees paid for by the employer and of time lost by other employees and works management at the time of accident or subsequently arising out of the accident, interference with production, payments from benevolent and friendly societies, and "light work" and 'alternative work" schemes These are non insurable losses and, when added to the figures already mentioned, must of necessity bring the gross cost to industry in Great Britain to a much greater figure American investigations suggest that such losses are in the ratio of 4 to 1, in relation to the direct costs Even if a more conservative estimate of 2 to 1 were taken, the gross cost to industry would still be in the region of £40 000 000 and if the cost of the social effects could be computed such as the loss of wages, the decrease in spending power, and the effect on trade generally the total figure must come to an immense sum annually

CLAIM FOR COMPENSATION

Under section 15 (1) of the Act the employer has to post up ' in some conspicuous place at or near every mine, quarry, or factory, where it may be conveniently read by the persons employed, a summary of the requirements of the Act, with regard to the giving of notice of accidents and the making of claims. . ." In my experience the workman rarely if ever reads this, or, if he does read, does not fully understand what he has to do. Often, too, the notice may be in a place to which the workman rarely goes And so it happens that some of us may have to advise an employee how to proceed with a claim for compensation after an injury, and medical practitioners, especially in industrial areas, may also be asked for advice The following points which have proved of practical value in a large factory in the midlands may therefore be helpful and can readily be told to the workman by his medical attendant or can be issued by the employer in the form of a pamphlet·

---

* Read in opening a discussion at a meeting of the Institute of Labour Management, London, Nov 8 1938

† Workmen's Compensation Statistics of Compensation and Proceedings for 1936 1938 London

TO THE WORKER

HOW TO PROCEED IN THE EVENT OF AN ACCIDENT AT WORK

Should you at any time meet with an accident in the course of your employment you should carefully follow these directions :—

(1) However slight the injury you must report immediately to your ambulance room (or first-aid attendant if there is no ambulance room)

(2) As soon as you return to your department from the ambulance room (or attendant) you should report the accident to your foreman, and you should also enter full particulars (or ask a fellow worker to do so on your behalf) in the accident book which has to be provided by your employer under law

(3) If as a result of your injury you are sent home, to hospital, or to your panel doctor (without returning to your department), the nurse or first-aid attendant will notify the foreman on your behalf, and in that case it is not necessary to enter particulars in the accident book.

HOW TO OBTAIN COMPENSATION UNDER THE WORKMEN'S COMPENSATION ACT

Compensation is payable when you suffer loss of earnings as a result of personal injury by accident arising out of and in the course of employment. Follow this procedure .—

(1) Obtain a doctor's certificate and send it to the works with your full name, department, clock number, date and time of accident, and when and to whom reported If you have not previously reported the accident, give these particulars when you send the doctor's note

(2) Your employer, or the insurance officer acting for him, may have to obtain further details of the occurrence from you and may require you to be examined by a medical practitioner chosen by him In your own interest you should do all in your power to assist in every way. Doctors' fees in this respect will be paid by your employer or the insurance officer.

(3) When it is established that your incapacity is in accordance with law, arrangements will be made for payment of compensation Legally, no compensation is payable for the first three days of disablement unless the disablement lasts for four weeks or more

(4) If you have any doubt whatever whether your absence from work is due to an "accident" covered by the Act, you should obtain from your panel doctor a national health insurance certificate for submission to your approved society; otherwise you may lose health insurance benefit should it later be established that you have no claim under the Workmen's Compensation Act. It will then be the duty of your approved society to approach your employer or the insurance officer, should they consider it a case for compensation rather than sickness benefit

(5) In disputed cases your approved society will, if its rules so provide, make you an advance of benefit until a decision has been reached as to whether the absence does or does not entitle you to compensation. If the rules of your approved society do not provide for such an advance of benefit, they may still agree to make you the advance and notify your employer, and in the event of your being entitled to compensation the total amount so advanced will be repaid by your employer to your approved society from the compensation money

COMPENSATION PAYMENTS

Compensation payments start as from the fourth day of the accident, but if the injured man is off work for four weeks or more he receives payment for the first three days Some firms realise the possible hardship to a man as a result of this and pay compensation from the day of the injury. My own firm does this but reserves the right to withhold payment in cases where they consider that the man has been at fault—for example, in not reporting a finger injury until it is septic.

The maximal payment to the injured workman is 30*s*. a week. It may be paid until the employee is ready for some form of work, and then the law states that this amount may be reduced because of the fact that he may not be totally incapacitated The amount of compensation is assessed on the man's average weekly earnings—the maximum of 30*s* being given only if the man has been earning a wage of £3 a week or over. If the wage has been less than that, his compensation is assessed on a sliding scale; for example, a man earning 50*s*. a week will receive 25*s* in compensation, and so on If a man who has earned 50*s* a week returns to work at a wage, say, of 42*s*. 6*d* per week, half the loss of earnings—i e, half of 7*s* 6*d* —is paid to him under the Act If that payment is likely to be permanent it is usually compounded as a lump-sum settlement which cannot be paid except by the assent of the county court, where the judge is the assessor as to its sufficiency. Lump sums are paid into court and kept there until the person is 21 years of age, up to which time the worker receives 5 per cent interest on his money. Thereafter the sum is handed over to the worker, who has the complete right of disposal

SOME EFFECTS OF THE PRESENT LAWS

The amount of weekly payment —We have seen that the maximal amount which a worker can receive as compensation as a result of an injury is 30*s*. per week. If the worker belongs to sick clubs or friendly societies to which he has contributed he may pick up another 10*s*. to 15*s* per week, but only for a limited period. For example, in I C I. all employees contribute to a workers' friendly society at the rate of 4*d* a week and receive, when away from work through sickness or injury, 10*s* a week for thirteen weeks. After that time has elapsed half benefit is granted —i e, 5*s* a week—which is payable for a further period of thirteen weeks

Many workers in this country receive a wage greater than £3 a week, and when they meet with an accident at work have to be content with a reduction in income. In such cases the income is often inadequate to support a sick man and his dependants. Feeding costs are not necessarily reduced by incapacity, and actually may be increased, while at the same time the man has less money with which to purchase food. The inadequacy of income may hasten the man's return to work and may do him harm, and in other cases it may delay his return

Further economic difficulties and home troubles will certainly arise The universal use of hire-purchase systems may mean difficulty in finding weekly payments; children have to be clothed; the wife has to be given money to maintain the household; rents have to be paid; and there may be considerable travelling expenses to hospital. Savings are quickly used up, and in some cases, because of the sudden change in method and habit of living physical, mental, and moral degeneracy may ensue. Men are more seriously affected than women in most cases because of their higher average earnings. Generally speaking, when a man is off work as a result of injury his whole status is altered, and, the cost of living index having increased during recent years and the purchasing power today being less than it was, the amount of money that a man can bring into the home becomes a matter of prime importance.

The remedy for this state of affairs, which is so intimately bound up with the man's power of recovery, must be by some reassessment of the amount of weekly compensation payment. To be effective the assessment should bear a closer relationship to the man's economic and home life than it has hitherto. For example, the number of children under the age of 14 which he has to maintain is an important point. The term "compensation" at this stage of the man's absence is really a misnomer. Weekly payments should rather be considered as "allowances for maintenance" or even "allowances for treatment." Public opinion agrees that this is one of the outstanding deficiencies of the present Act, and from the medical point of view its importance cannot be over emphasised.

Delay in payment.—In some cases there may be hardship to the injured workman where there is doubt as to whether his disablement is due to non occupational reasons or has arisen out of his employment. No difficulty arises in cases where the employer accepts liability, but if he does not do so, and if the approved society also refuses benefit, the man may find himself suddenly without income for several weeks, pending the settlement of his case. Most of the large approved societies pay when their members ask for an advance, but in my experience a number of cases of hardship have arisen; as a result of the delay men become quickly antagonistic to everything, including treatment, and rapidly become difficult to handle and unreceptive to medical advice. The report of the committee on "certain questions arising under the Workmen's Compensation Act" has considered this problem in detail and has recommended that it should be the duty of approved societies to make advances of sickness benefit to workmen pending a decision on the claim for compensation under the Act. If this recommendation is made law, one obvious deficiency will be rectified.

Lump sum settlements.—The practice of lump sums being handed over to workmen in compensation for disablement appears to be popular in this country. From a medical point of view, however, the question raises many difficulties and often is the direct cause of major psychological disturbances. The granting of such sums may be preceded by extended litigation. When this takes place the patient's attention is given up to the immediate issue—i.e., obtaining large sums of money—and the fact that there is a necessity for him to recover is relegated to the background. The thought of disability becomes fixed in his mind, and he feels that he cannot afford to get well. In workmen who may have neurotic tendencies the idea of litigation produces a well marked psychoneurosis.

In some cases lump sum payments have the effect of producing rapid cure specially with minor injuries. The psychological sequelæ are thereby placed in their proper perspective with a clinical improvement. In other cases the holding up of lump sum settlement produces a mental imbalance, but, once payment is made, the patient's imaginary troubles are transferred to some other sphere, and recovery is rapid. A similar state of affairs occurs when the patient may be forced into litigation on the advice of his lawyer, of his trade union official, or even of his friends and relations. Once the anxiety of litigation is removed, cure is no longer delayed.

In my experience lump sums are often mismanaged by those who receive them, although this is not necessarily the experience of others. Small businesses are bought in the hope of good profits. Lack of ability may quickly convert the outlay into complete loss. Women often purchase expensive articles to which their imagination may have been attracted for years previously—e.g., fur coats and wireless sets—and men become all too keen on a flutter. This misuse of lump sums appears to apply mainly to young persons and to those who are emotionally unstable. The idea of suddenly acquiring a comparatively large sum of money fascinates to a degree, and judgment becomes warped. On the other hand, one often feels strongly in sympathy with them; under the same circumstances which of us would not feel tempted likewise? In many cases where a lump sum has been badly expended and wasted, and the degree of incapacity has been such that the man is unfit to earn a living wage, he eventually becomes relegated to the industrial scrap heap and along with the unemployable, presents the country with an acute social problem.

This problem, in so far as injuries are concerned, can be solved primarily by reducing the number of cases who have permanent disability. The medical profession and hospital authorities generally have much to learn from clinics such as that of Böhler in Vienna, where a reduction of over 30 per cent is claimed to have been effected in such cases. In short, when we consider the facts in their true perspective medicine of today is surely presented with a great incentive towards further efforts in this direction.

Lack of travelling allowances to and from treatment centres.—No allowances are given for travelling to and from hospital for treatment. In many cases this is a hardship. A man may have to attend at hospital every day for long periods, being forced to spend several shillings a week in fares. The only payment of this kind allowed for under the Act is the cost of travelling to a medical referee appointed by the insurance company. Some insurance companies, however, take the matter into consideration when the final lump sum assessment is made but this is unsatisfactory. The remedy is simple. Reasonable allowances, not necessarily paid in cash (because the possibility of abuse is self evident), should be made to the patient from the beginning in such cases; the result from the medical point of view alone would well justify some alteration in the Act and do much to relieve a petty worry with which I have often had to deal.

Lack of provision of special apparatus such as artificial limbs.—Compensation payment does not cover the cost of special apparatus required by the patient for his complete rehabilitation—e.g., artificial limbs, teeth, or eyes, wigs, and glasses—but many employers provide these extras through their insurance companies and my own company gives its medical officers a free hand in this matter. In the case of teeth and glasses benefit can often be obtained through approved societies covering a part of the payment necessary.

In the case of a workman who has lost a leg rehabilitation cannot be complete until he obtains a well-fitting artificial limb. Further, he has to be exercised and educated in its use But just at the time when a limb is necessary he may be in the middle of litigation and is completely unable to afford this costly piece of apparatus. From the medical point of view there is no doubt that great benefit would be derived on all sides if the cost of such apparatus could be met in every case by insurance companies, at a time and of a type to be decided by medical opinion

Injuries due to larking.—Compensation is not available for the workman who is injured in the course of his occupation by another employee or person inside the factory who is larking or playing the fool. The injured man can sue the aggressor in common law but not the company. Needless to say, such action could be of little benefit to the man. The difficulties of changing legislation on this point are no doubt many, but nevertheless men have to suffer needlessly today because of the law, and from the purely medical point of view treatment is often made extremely difficult. It is felt that the subject needs full investigation.

INSURANCE COMPANIES AND COMPENSATION PAYMENTS

In discussing the relationship between compensation and rehabilitation some brief mention must be made of the fact that insurance companies play a most important part in the scheme of things Because of the custom of insuring against risk in almost all branches of life it is natural that this should frequently be done by employers in connexion with their liability under the compensation laws (Imperial Chemical Industries, as do many other organisations in the country, carries its own insurance; and other firms insure through mutual indemnity associations. This paragraph does not refer to either method of insurance and compensation payments) The procedure immediately raises an issue with regard to compensation payments which has an intimate bearing on the problem.

There is a feeling that the manner in which payments are made to injured workmen is frequently open to serious criticism, and that some of the present methods of insurance should be revised. No doubt the subject will be discussed in full by the interdepartmental committee whose report is awaited with interest and by the royal commission. Indeed, to avoid full investigation into the matter would be to evade one of the main issues and so reduce the value of other recommendations The problem is primarily non-medical, but the direct effects on the patient and therefore on his relationship with the doctor are of undoubted importance to modern medicine

Forcible statements on this question have been made by a number of authorities In discussing the subject of industrial health the P E P report on the British Health Services, perhaps one of the most penetrating publications of our time, makes this statement: "Some of the methods insurance companies employ to induce injured men to take lump-sum payments, which are often cheaper to the company than annuities, are very questionable." And the B.M.A. committee on fractures reported that: "It is to be inferred that measures, such as here proposed, which will very materially reduce the total incapacity periods of the insured, will not necessarily be welcomed (by insurance companies), since that must involve a reduction of revenue through the lowering of premium"

GENERAL CONSIDERATIONS

Under present conditions the laws relating to workmen's compensation are not only often a hardship to the workman but also seriously handicap the doctor who is trying to do his best for the patient. Because of this fact the time has come for the medical profession to make a strong protest against such a state of affairs.

The present Act deals with compensation, but little is said about treatment There is no onus on the injured man to provide himself with suitable treatment, and no suggestion that a good recovery is essential, even on purely economic grounds. Is there not a prima-facie case now for action? Have we forgotten the lessons of the late war and the work of the Ministry of Pensions, when treatment was all important and was carried out by doctors of the highest skill, when a man could not refuse treatment or discontinue it without losing benefit and allowances, and when occupational training and rehabilitation, in a sense of the term not known today, were freely provided.

Rehabilitation, so much discussed at present, is a matter not by any means only for medical skill and knowledge To be effective it must cater for the patient, both as a worker in industry and also as an individual member of a community and head of a home The medical profession will do its best—of that there is no doubt—when the proper lead is given, but any alterations and improvements in the present methods of treatment and rehabilitation which may take place in the near future must of necessity be accompanied by fundamental alterations in the laws of the land.

PLACENTAL BLOOD FOR TRANSFUSION

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Blood for transfusion is likely to enjoy a boom, in which all sources of this valuable commodity will merit careful investigation It is therefore opportune that there have recently appeared a number of communications on the possibilities of using placental blood for transfusion, and these must have aroused the curiosity of all interested in this work.

Neglecting for the moment the alleged advantages of placental blood, qua blood, such as increased erythrocyte and hæmoglobin content, absence of allergens and agglutinins, and enhanced hæmostatic powers, we have confined the issue by which this new source of supply is to be assessed to three essential questions of practical importance The first of these is the *quantity*, which must be of such average proportion as to justify the trouble of collection, otherwise the source is uneconomical The second is the *sterility* of the collected samples, when an ordinary aseptic routine is used against genital, air-borne, and droplet infection; a high percentage of contaminations immediately vitiates the whole method Thirdly, it must be feasible to entrust the *collection* of the blood to the ordinary personnel of a hospital obstetric unit

Goodall, Anderson, Altimas, and MacPhail (1938) described in some detail their methods of collection and preservation of placental blood, for which they used a formula later referred to in this article. Their average yield was 125 c.cm and with regard to the question of sterility they made the following observation "cultures of the preserved blood are unnecessary because, at the low temperature for preservation, contamination, if present, could not propagate, and consequently would be so attenuated as to be innocuous" To both these points we refer later These workers claim, moreover, that "in the many transfusions with fœtal blood there has not been one untoward reaction"

Grodberg and Carey (1938) in a similar investigation *claimed an average yield of 105 c cm, they did not,* however, use the same anticoagulant as Goodall and his colleagues, but substituted 15 c cm of a 2 5 per cent sodium citrate solution, which is in close agreement with our own optimum solution, although they mention that they did in a few cases employ Goodall's formula, without stating what, if any, reactions they obtained from this In this series 46 patients were transfused with a reaction ratio of 1 in 20 To test the sterility of the 235 samples collected Grodberg and Carey selected 26 and cultured these aerobically and anaerobically Their vintage varied from 1 to 36 days and the cultures were uniformly sterile The onus of collection was, presumably, in the hands of interns, as the operators are referred to as male To all these points we shall severally refer later

TECHNIQUE OF COLLECTION AND STORAGE

All infected and potentially infected cases, and all cases in which the baby is asphyxiated, must be excluded, and only normal clean deliveries used As soon as the baby is born the cord is clamped with *artery forceps in two places and divided* The operator responsible for the collection of the placental blood, after carefully swabbing the cord with surgical spirit or iodine, discards his or her dirty gloves and puts on a clean pair The cord is compressed between the finger and thumb and the distal six inches, with the clamp attached, severed, the end of the cord is now inserted through *a small hole in a sterile towel* and allowed to drain, via a funnel, into a sterile container, into which has been poured the anticoagulant fluid The purpose of the towel is to exclude air borne and droplet infection and to prevent any fluid, contaminated from the genital tract and perineum, from seeping down the cord and *into the* container After massaging the fundus and milking the cord to ensure the maximum possible yield the container is sealed and placed, duly labelled with the date of collection, in a refrigerator at 38° F A small test-tube is filled with enough blood to group the sample and affixed to the main container

The actual container used by us for storing the blood was a rubber stoppered milk bottle and a number of these were kept ready sterilised in a special drum in the labour theatre The anticoagulant that we employed was 0 3 g *of sodium citrate in 10 c cm* of sterile water and this was prepared specially *for* us in ready sealed ampoules by British Drug Houses Ltd, whom we wish to thank *for* their helpful coöperation Before deciding on this anticoagulant we experimented with one recommended by Goodall, Anderson Altimas, and MacPhail (1938) according to their formula which is taken from the Moscow *Institute of Hæmatology* This consisted of the following ingredients —

Sodium chloride .	7 0 g
Sodium citrate .	5 0 g
Potassium chloride	0 2 g
Magnesium sulphate .	0 004 g
Twice distilled water	1000 c cm

"This solution is now put up in ampoules of 25 c c which, when added to 100 c c of distilled water, gives one the proper dilution, so that preservative and blood from each case is mixed in equal proportions, 125 c c of preservative and roughly 125 c c of blood" The result *of using this solution* was unsuccessful, not only did the blood clot in each case, but hæmolysis occurred in addition These phenomena we attributed to the hypotonicity of the solution and the fact that the minimum requirement of citrate concentration percentage was not fulfilled This percentage is generally recognised to be in the region of 0 3 g sodium citrate to every 100 c cm of blood

INVESTIGATION OF MATERIAL

Placental blood was collected as described from 50 cases, immediately after the delivery of the child, and stored in a refrigerator at 38° F The average yield obtained was 47 c cm and the maximum 90 c cm

The sterility of the various samples was investigated at periods varying from six to fifteen days, employing the following technique After gentle agitation to mix the blood uniformly in the bottle, 1 c cm was transferred to both peptone broth and cooked meat medium The former was incubated aerobically and the latter anaerobically in a McIntosh and Fildes jar and *observations made up to a period* of one week The results of these primary cultures of the individual samples revealed that 22 per cent were contaminated The infecting organisms were for the most part saprophytes and comprised *Bacillus subtilis* group (12 per cent) coliform bacilli (6 per cent), *white staphylococci* (2 per cent) *and B pyocyaneus* (2 per cent) These represent air borne, skin, or genital tract contamination

Repeat cultures (aerobic and anaerobic) were made on the samples of blood after intervals of a further two to four weeks' cold storage, with the exception of one sample, when an organism of the *B subtilis* group was obtained on the second culture only, the results were identical with the primary cultures

DISCUSSION

The average quantity of placental blood collected from our 50 cases is small—i e, 47 c cm which compares unfavourably with Goodall's and Grodberg's figures of 125 and 105 c cm respectively In explanation of our modest average volume it should be emphasised that the samples were obtained from *fifty consecutive placentæ at term without selection* of the larger or rejection of the smaller samples This small yield would necessitate the mixture of 10–12 samples to supply the bulk of blood usually employed in an adult transfusion, and it is questionable if this extensive pooling of several bloods, *although of the same group, is entirely devoid of the* risk of minor subgroup reactions of agglutination

With regard to sterility the result of our investigation showed that 22 per cent of the samples were contaminated with air borne or genital tract organisms We can neither agree with Goodall in his assertion that culture *of the* collected blood is unnecessary, nor with Grodberg in his statement that any stray organisms present are usually killed by the leucocytes —a statement that we have proved to be incorrect in that our second culture always tallied with our first, and organisms if present on the seventh day always survived up to the time of subsequent culture We would hesitate to sponsor the lighthearted intravenous infusion of a thriving colony of *B subtilis*, let alone one of *B pyocyaneus*

Thirdly, there arises the question whether the collection of placental blood can be feasibly entrusted to the ordinary personnel of a labour ward or whether it demands specially trained operators Using a reasonably aseptic technique, we have found the contamination ratio high; moreover, the yield is disappointing No doubt better results could be obtained if the blood were collected by, say, the resident obstetric staff Such a necessity must throw an intolerable burden upon the shoulders of the officers concerned, the reward of which is *trifling* and questionable in comparison to the trouble involved

Lastly, this source of blood for transfusion, however carefully perfected the technique of its collection, sterilisation, and storage, is unlikely seriously to rival that available through the voluntary-donor system, which we so *fortunately* have established in this country

SUMMARY

1 The average volume of placental blood collected in 50 consecutive cases of normal labour at term was 47 c cm

2 The contamination percentage was 22 per cent

3. The organisms were air-borne and genital-tract contaminants: *B subtilis*, *B. coli*, *Staphylococcus albus*, and *B. pyocyaneus.*

4. Both these figures were obtained using the ordinary personnel of a labour ward, and not specially trained operators

5 In such hands this source of blood is uneconomical in quantity and unsafe for human consumption

We should like to acknowledge the assistance rendered in this investigation by the sister and staff of the labour ward, and by our laboratory technicians, Mr. E. Wilson and Mr. B Cambridge.

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THE PROPHYLAXIS OF TUBERCULOUS EMPYEMA

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By tuberculous empyema is meant suppurative pleurisy caused wholly or partly by the tubercle bacillus This definition excludes (1) chronic pleural effusions which have become turbid by the admixture of endothelial cells and often contain tubercle bacilli and (2) transient infected effusions during artificial pneumothorax which clear without treatment

ÆTIOLOGY AND PATHOLOGY

Tuberculous empyema occurs (1) as a common complication of spontaneous pneumothorax; (2) as an occasional complication of artificial pneumothorax; and (3) least often as an invariable consequence of *invasion of the pleura* by a burrowing tuberculous abscess of the chest wall. In all these circumstances heavy infection is the immediate cause

The pleura is a serous membrane and has some power, comparable with that of the peritoneum, of resisting infection. For this reason acute pleurisy with effusion, a tuberculous condition, very rarely becomes transformed into empyema; the subpleural focus which has produced it does not provide an infection massive enough to overcome the protective power of the pleura Occasionally the fluid may later become purulent, but the condition is usually afebrile showing few or no signs of toxæmia, and constitutes one type of "cold pleural abscess" (Dumarest et al. 1936)

When spontaneous pneumothorax resolves completely without effusion, one is left in doubt whether the cause was tuberculosis or emphysema; but, when an *effusion follows*, tuberculosis is the cause In such cases a caseous tuberculous focus involves both the pleura and the subjacent part of the lung, and produces both the fluid and the pleuropulmonary fistula through which air passes from the lung into the pleural cavity Hence the later history of these *patients is often bad* Of 26 patients with spontaneous pneumothorax mentioned by Burrell (1937) 17 developed tuberculous empyema, and of these 14 died

Purulent effusion is a very grave complication of artificial pneumothorax treatment for pulmonary tuberculosis In the series of reported cases which I have studied the incidence appears to be just over 10 per cent. Brock, Mullen, and Woodson (1937) reported 77 empyemas in 530 cases; Burrell (1937) 54 in 500 cases; Leaver and Hardaway (1937) 35 in 750 cases; Ferrari (1935) 18 in 200 cases, Dumarest and Brette (1929) 42 in 265 cases, and Peters (1921) 26 in 250 cases These total 284 empyemas in 2646 cases (10 7 per cent), and one may well suppose that the proportion would be higher rather than lower in unpublished cases.

It is now generally agreed that well-marked serous effusion in artificial pneumothorax is due to tuberculous pleurisy, only those negligible puddles in the costophrenic sinus being attributable to trauma. Burrell (1937) found that of 309 cases of artificial pneumothorax induced for pulmonary tuberculosis 41 4 per cent were complicated by serous effusion, whereas of 54 induced for non-tuberculous disease less than 2 per cent were complicated by effusion His findings are supported by those of Morriston Davies (1933), Brock, Mullen, and Woodson (1937), and various other authorities Since both serous and purulent effusions appear to be due to tuberculosis of the pleura, they are essentially alike in kind though differing in degree It seems reasonable to suppose that the serous may progress to the purulent if the disease becomes more severe or the patient less resistant, and I consider that this takes place when collapse is unsatisfactory and the lesion in the lung remains active and progressive

It has been said that serous effusion in artificial pneumothorax does not make the prognosis worse. With satisfactory collapse of the lung, with the pulmonary disease under control, and with adhesions absent or negligible, this is certainly true, and clinicians are not alarmed by an effusion in these circumstances; but with unsatisfactory collapse, with active and progressive pulmonary disease, and with troublesome adhesions, the effusion is a grave sign, and empyema is so likely to follow that active steps must be taken to prevent it Hayes (1927) found that 31 out of 32 empyemas, and Leaver and Hardaway (1937) 14 out of 35, were preceded by serous effusion.

Pleural adhesions may lead to empyema in three different ways.

(1) By preventing collapse of the diseased area they may allow the lesion to remain active and progressive; when caseation eventually involves the pleura the resulting empyema is simply a sign

that the lesion has not been controlled The patients usually do badly, and the object of treatment should be to prevent, rather than cure, empyema

(2) Traction upon adhesions is thought by many to be a cause of serous effusion (Hutchinson and Blair 1926, Stobie 1930, Ford 1932), if the adhesion is torn at the base, allowing caseous material to escape into the pleura, empyema is the usual sequel For this reason the former practice of leaving a high positive pressure at the conclusion of a refill to "stretch the adhesions" has now been abandoned When adhesions rupture in these circumstances, empyema often results (Riviere 1927)

(3) Empyema may follow the therapeutic cauterisation of adhesions The Jacobaeus operation has been of great value in many cases, and I have not the slightest intention of disparaging it However, Jacobaeus himself (1920), in the early days of cauterisation of adhesions, recognised empyema as the most serious complication of his operation Chandler (1932) has given a similar warning

About other causes there is little to be said Tuberculous abscesses of the chest wall sometimes arise from lymphatic glands, others arise from sternum, ribs, or vertebræ Maurer, Rolland, and Roux (1935) consider that many are due to lymphatic spread from the pleura

MORTALITY

The published figures for tuberculous empyema fall into two main groups —

(1) Selected series of cases treated by a special method These are valuable because they indicate useful lines of treatment, but they do not give a true idea of the mortality as a whole, since the workers have usually selected the patients most likely to respond to treatment

(2) Unselected series of cases with total recovery and mortality rates These include those of Burrell (1937), who had a mortality of 85 per cent of 54 cases, Ostrowski (1936), 58 per cent of 36 cases, Smart (1934), 44 per cent of 71 cases, Jonsson (1934), 56 per cent of 80 cases, Jones and Alexander (1934), 33 per cent of 70 cases, Berry (1932), 65 per cent of 75 cases, and Hedblom (1932), 24 5 per cent of 143 cases

The average mortality for published cases, then, is approximately 50 per cent One must not suppose, however, that the remaining patients were cured On the contrary, many were classed as "improved," which meant that they died slowly The longer a series is followed up, the more patients meet this fate Burrell's mortality appears higher, only because he followed up his patients over a longer period And no doubt the mortality for unpublished cases would be greater still

PROPHYLAXIS

Since spontaneous pneumothorax cannot be foreseen and tuberculous abscess of the chest wall can readily be treated, prophylaxis concerns chiefly the induction and management of artificial pneumothorax This measure has produced brilliant cures in pulmonary tuberculosis, and I *do not intend to* belittle it in any way Attention to a few points, however, helps to reduce its complications to the minimum

There are certain contra indications to the treatment, and one of them has not been much emphasised Transient pain in the chest is of little consequence, but *constant or recurrent pleural pain over the lesion indicates well marked tuberculosis of the pleura* and artificial pneumothorax in such a case may be complicated by purulent effusion, with disastrous results. *It must* be decided whether pneumothorax should be postponed or entirely omitted As Alexander (1937) has pointed out, there are ten distinct methods of collapse therapy, and when artificial pneumothorax is contra indicated another method may be used

Dumarest and Brette (1929) and other authorities consider that the treatment should not be begun during *menstruation*, for pleural effusion is more likely then

Relaxation rather than compression of the lung is the aim of treatment Collapse up to 60 per cent is usually adequate, a high degree of collapse is *seldom advisable and may be followed by non-expansion* of the lung at the end of treatment It is customary to leave *a small negative pressure* in the pleura at the conclusion of a refill It is dangerous to leave high positive pressures to "stretch the adhesions" Although this may occasionally much increase the effectiveness of the pneumothorax the chance is not so good that the life of the patient should be staked on it

Termination of an ineffective pneumothorax is most important The physician should review an established pneumothorax and decide whether it is controlling the disease or not If not, more must be done the amount of collapse may be altered or thoracoscopy performed, and adhesions cauterised If the disease still remains active and progressive, more and more lung tissue becomes involved, and when empyema appears, as often happens, it is simply a sign that the lesion has become extensive These empyemas do not respond to treatment, and the patients usually die of progressive lung disease The ineffective pneumothorax should be promptly abandoned, for it is not only useless but wastes precious months during which another form of collapse therapy might be substituted

In one type of case disease affects the whole or a large part, of one lung, but pneumothorax maintains adequate collapse of only a part—e g, the base *Extrapleural pneumothorax* may then be performed to collapse the rest and refills given into both pneumothorax cavities, alternatively, the cavities may be joined into one by the procedure described by Brock (1938)

Oleothorax has its place in the prevention, as well as the treatment, of tuberculous empyema Cases occur in which pneumothorax appears to be maintaining satisfactory collapse of the lung, but fluid appears, becomes turbid, and is found to contain tubercle bacilli. Such infected effusions sometimes clear *spontaneously, and it is well to leave them alone at first*, but, if they show signs of developing into frank empyemas, more must be done This type of patient does well with oleothorax, Chandler (1930) has emphasised this and outlined the indications

SUMMARY

(1) The incidence of tuberculous empyema in patients with artificial pneumothorax is about 10 per cent and its fatality rate, in published cases, about 50 per cent Therefore prevention seems especially important (2) It is suggested that persistent or recurrent pleural pain over the lesion indicates severe tuberculosis of the pleura which contra indicates artificial pneumothorax The risk of empyema is sufficiently great to make some other form of collapse therapy advisable (3) The object of artificial pneumothorax is relaxation, not compression of the lung High positive pressures to "stretch the adhesions are not justifiable (4) After cauterisation of adhesions and adjustment of collapse, a pneumothorax which remains ineffective

should be promptly abandoned and other collapse therapy substituted. Oleothorax and extrapleural pneumothorax are valuable in certain cases

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RENAL CHANGES IN MALIGNANT HYPERTENSION

EXPERIMENTAL EVIDENCE*

By Clifford Wilson, D M. Oxfd

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(WITH ILLUSTRATIONS ON SPECIAL PLATE)

Forty-four years ago Clifford Allbutt (1895), delivering the first Hunterian Society's lecture, described a group of patients with high blood-pressure who at no time developed any clinical signs of renal disease Afterwards he applied the term hyperpiesia to this condition His distinction between "essential" hypertension and the hypertension associated with chronic renal disease has been of great value in forecasting the clinical course in the majority of cases of high blood-pressure There remain however some cases that fall into neither group—namely, those in which the patient seems at first to be suffering from essential hypertension, yet contrary to Allbutt's teaching, the disease runs a malignant course to end in renal failure within a few years

This group has been struggling for recognition ever since Volhard and Fahr (1914) presented their classification of Bright's disease. Fahr (1919) termed the condition "malignant sclerosis" to emphasise the occurrence in the kidney and other organs of severe arterial lesions which he regarded as the primary cause of the hypertension The clinical term "malignant hypertension" has however proved more acceptable and has been justified by recent clinical and pathological studies (Kimmelstiel and Wilson 1936, Ellis 1938) from which it appears that in the early stages of the condition renal changes are minimal or absent, the "nephrosclerosis" of Volhard and Fahr representing only the final stage of the disease The conception of a malignant form of essential hypertension is nevertheless creeping only uncertainly into general use There are three main reasons for this uncertainty —

1. If essential hypertension can lead to renal failure it is difficult to understand why it does not do so in the vast majority of cases

2 Cases of undoubted acute nephritis which become chronic may develop terminal features, both clinical and histological, which are indistinguishable from those of malignant hypertension—namely, a very high blood-pressure, with marked hypertensive symptoms (encephalopathy and retinopathy) and rapidly progressive renal failure; and histologically the association of acute gomerular lesions with arterial necroses in the kidney and in other organs

3. If we exclude cases where death takes place in the early stages, the kidneys in malignant hypertension show gross damage in the shape of a "chronic interstitial nephritis," the characters of which, and especially the glomerular lesions, have been regarded as consistent only with a long-standing, *primary* nephritis.

If it could be shown experimentally that this picture of chronic interstitial nephritis may be caused *by hypertension alone*, the concept of malignant hypertension would be greatly strengthened. It is the object of this paper to present such evidence.

HYPERTENSION AND RENAL ISCHÆMIA

During the past few years much work has been done on experimental hypertension induced in animals by reducing the blood-supply to the kidney. Goldblatt and his colleagues (1934) greatly stimulated this type of investigation by the introduction of an adjustable clamp for producing partial occlusion of the renal arteries in dogs. They showed that constriction of both renal arteries, or alternatively of one renal artery with removal of the opposite kidney, gave rise

LEGENDS TO ILLUSTRATIONS ON PLATE

1—Rat kidney Acute necrosis of afferent arteriole to glomerulus (Hæmatoxylin and eosin, × 260.)

2—Human kidney Malignant hypertension Acute necrosis of afferent arteriole to glomerulus (Hæmatoxylin and eosin, × 165)

3—Rat kidney. "Explosive" type of arterial necrosis; red blood-cells and fibrin deposited in vessel wall (Hæmatoxylin and eosin, × 140)

4—Human pancreas Malignant hypertension Similar type of arterial necrosis; red blood-cells and fibrin in wall. (Hæmatoxylin and eosin. ×, 155)

5—Rat kidney Cellular thickening of intima of a medium-sized artery ("endarteritis fibrosa"). Elastica interna greatly stretched and fragmented. (Weigert's elastic stain, × 170)

6—Human kidney. Malignant hypertension Similar lesion in interlobular artery. (Weigert's elastic stain, × 290)

7—Rat kidney Acute focal glomerular necrosis (Hæmatoxylin and eosin, × 210)

8—Human kidney Malignant hypertension Acute focal glomerular necrosis (Hæmatoxylin and eosin, × 185)

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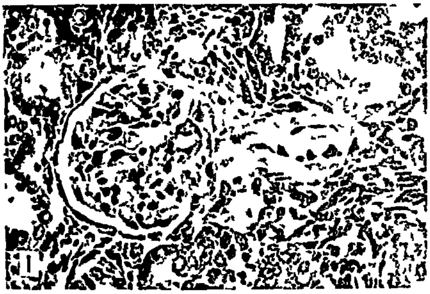
† In receipt of a full-time grant from the Medical Research Council; working in the Bernhard Baron institute of pathology, London Hospital

DRS WILSON AND BYROM RENAL CHANGES IN MALIGNANT HYPERTENSION

RAT KIDNEY

HUMAN KIDNEY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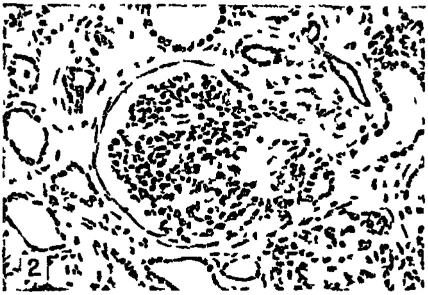
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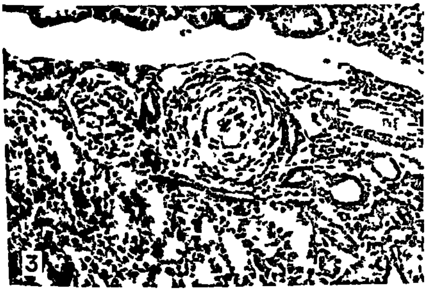
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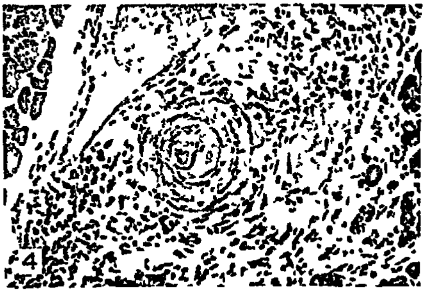
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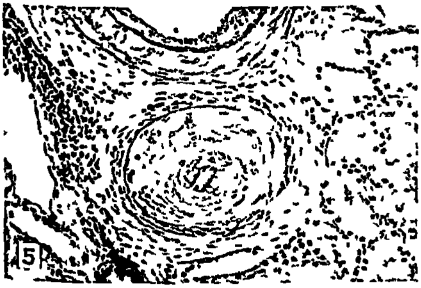
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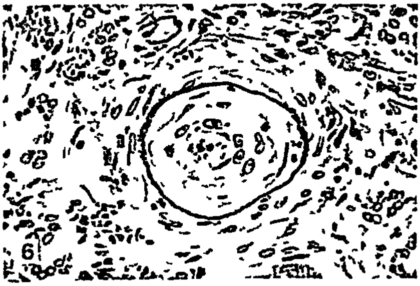
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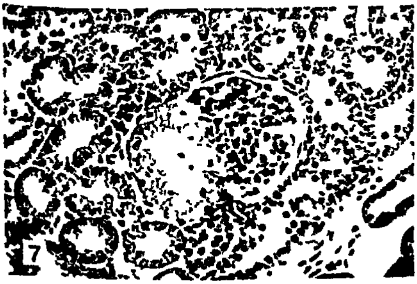
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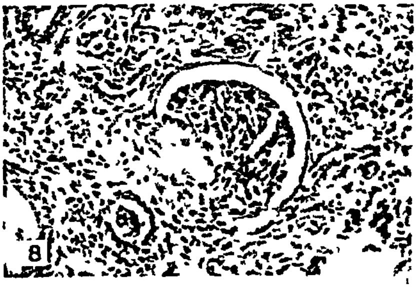
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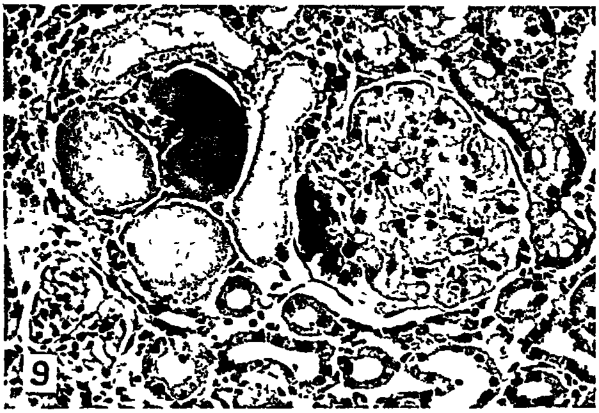
DRS. WILSON AND BYROM · RENAL CHANGES IN MALIGNANT HYPERTENSION

RAT KIDNEY

HUMAN KIDNEY (Figs 10, 12, 14)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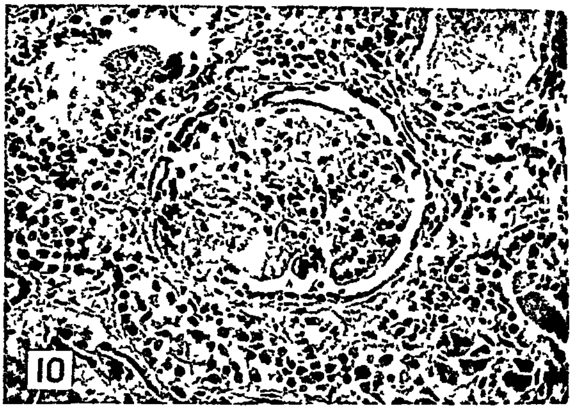
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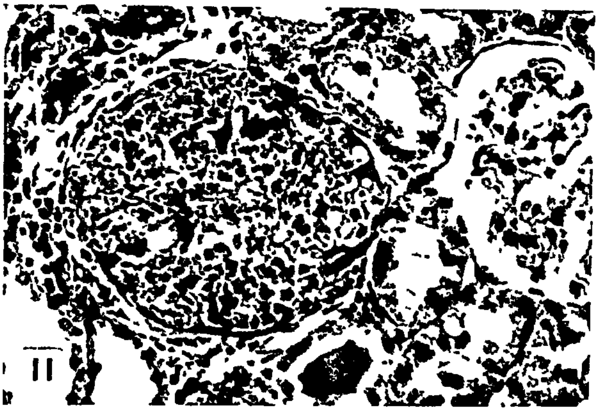
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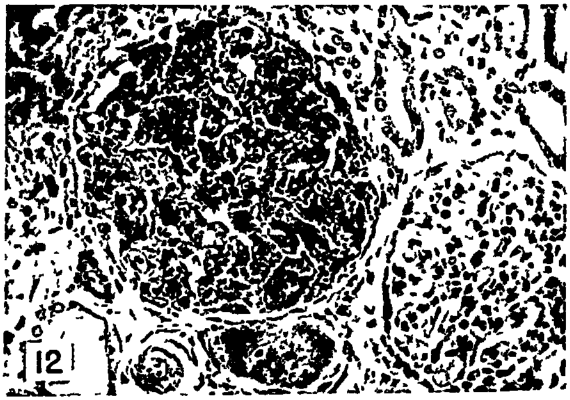
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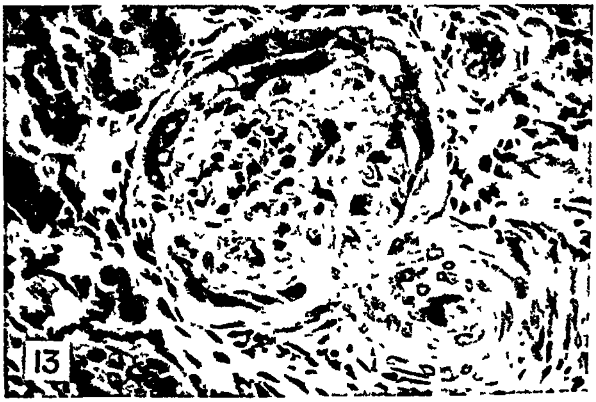
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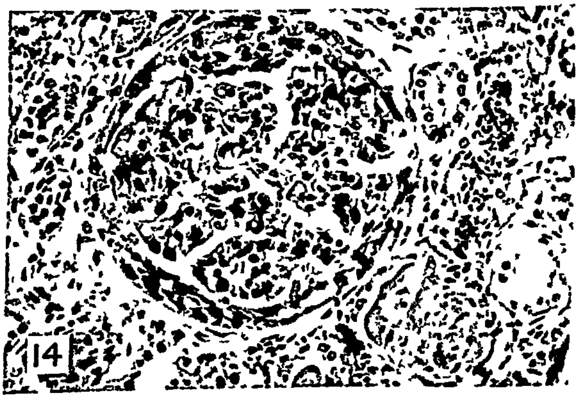
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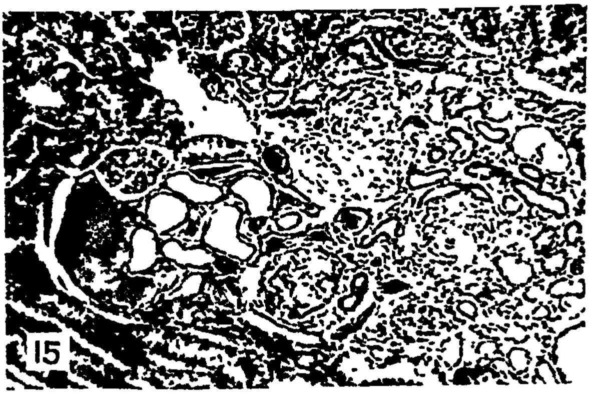
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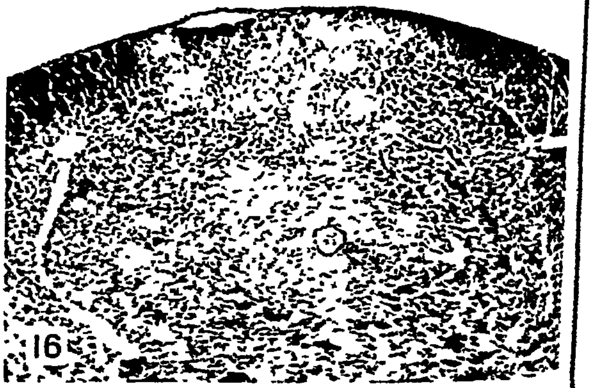
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to a long sustained elevation of the blood-pressure Wilson and Pickering (1938) recently showed that in rabbits with hypertension produced by this technique acute arterial lesions identical with those of malignant hypertension could be demonstrated in various organs, particularly in the intestines, but these lesions were not found in the kidneys Since the kidney is one of the commonest sites for acute vascular lesions in man, their absence from the rabbit's kidneys is significant It strongly suggests that the lesions found in organs other than the kidney are caused by increased arterial tension, from which the renal arterial system is protected by the clamp on the renal artery Goldblatt (1938) has described acute arterial lesions of a similar distribution in his hypertensive dogs, but since he observed the lesions only when the degree of constriction of the renal arteries was severe enough to produce renal insufficiency he concludes that this, as well as hypertension, is an essential factor in their causation

It must be emphasised that in the above experiments hypertension was produced by constriction of both renal arteries, or of one renal artery after excision of the opposite kidney It was therefore impossible to study the effects of the hypertension on an intact kidney The present paper is based on experiments on rats in which one renal artery was partially occluded *the opposite kidney being left intact* In the dog partial occlusion of one renal artery may lead to hypertension, but this is usually transient and seldom lasts more than a few weeks (Goldblatt et al 1934, Wood and Cash 1936) In rats however we have found that this procedure quite often gives rise to a persistent hypertension

Method and Results of the Experiments

In young adult rats of both sexes the kidney was exposed by a lumbar incision and the renal artery was compressed by one of two methods In 28 animals a wire was placed alongside the artery and a ligature tied round both, the wire was then removed leaving the artery partially constricted Subsequently in 129 animals we have used clips made from annealed silver ribbon and applied after the method described by Pickering and Prinzmetal (1938) for rabbits, with this method there is less risk of infarcting the kidney

Systolic blood-pressures were recorded weekly by the plethysmographic method (Byrom and Wilson 1938), using light ether anæsthesia.

The blood urea has been determined by a modification of the urease method on 0 2 c cm of blood taken from the tail

So far 35 animals have been killed at intervals ranging from five days to six months after the development of hypertension Portions of both kidneys, intestine, stomach, suprarenal glands, liver, pancreas, spleen, testicles, voluntary muscle, heart, brain, and eye have been examined histologically after fixation in saline formaldehyde Sections were stained by Ehrlich's hæmatoxylin and eosin, Weigert's fuchselin stain for elastic tissue, and Weigert's hæmatoxylin and van Gieson's stain

THE CLINICAL PICTURE

Compression of one renal artery has been performed on 157 rats and has given rise to hypertension in 101 (65 per cent) The blood pressure may be elevated as early as eighteen hours after the operation, or may begin to rise at any time during the first four weeks The usual rise is from the normal mean of 106 mm Hg to a level of 160–180 mm Values of 200 mm and over are not uncommon, the highest reading we have observed being 260 mm Hg The course of the hypertension varies considerably, but in general two main types may be recognised —

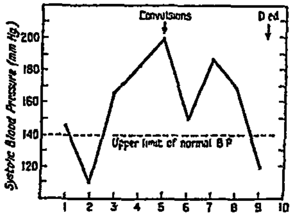

CHART 1 —Blood pressure curve of a rat following constriction of the right renal artery

(1) Those in which the blood-pressure rises gradually over a period of several weeks to reach a steady high level which, in animals still under observation, has been maintained for nine months and appears to be consistent with normal health

(2) Those in which the hypertension runs a more irregular course and often leads to a state of great weakness wasting, coma, and occasionally convulsions These symptoms are not due to renal insufficiency, for the blood-urea is within normal limits, and removal of the clamped kidney may be followed by rapid clinical improvement with return of the blood pressure to the normal level In this second type the blood-pressure chart usually shows one or more peaks of hypertension followed by relatively normal or subnormal values In several instances such a peak has preceded the onset of fatal symptoms, the pressure falling steeply before death (chart 1) The fall in blood presure in these animals may be caused by two factors (*a*) Heart failure due to the severe acute arterial lesions and perivascular hæmorrhagic necrosis which are invariably found in the myocardium in these cases (fig 16 on plate) (*b*) The occurrence of widespread acute arterial lesions in other organs It is possible moreover that sometimes the recorded pressure is lower than the actual value owing to the effect of anæsthesia on an ill rat (Chanutin and Ferris 1932) In 3 rats out of which have developed the syndrome described the symptoms came on without any hyper having been recorded It appears however th

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LEGENDS TO ILLUSTRATIONS ON PLATE

9—Rat kidney "Coagulative" type of necrosis of glomerular tuft (Hæmatoxylin and eosin, × 200)

10—Human kidney Malignant hypertension Similar type of glomerular necrosis (Hæmatoxylin and eosin, × 160)

11—Rat kidney, Hæmorrhagic infarction of glomerulus (Hæmatoxylin and eosin, × 280)

12—Human kidney Malignant hypertension Hæmorrhagic infarction of glomerulus fibrinoid necrosis of afferent arteriole (Hæmatoxylin and eosin, × 190)

13—Rat kidney Necrosed glomerulus with swelling and proliferation of capsular epithelium, fibrinoid necrosis of afferent arteriole (Hæmatoxylin and eosin, × 200)

14—Human kidney Malignant hypertension Similar lesion of glomerulus with epithelial proliferation (Hæmatoxylin and eosin, × 185)

15—Rat kidney Low power view showing association of arterial and glomerular lesions with tubular atrophy and dilatation (Hæmatoxylin and eosin, × 88)

16—Rat heart Perivascular hæmorrhagic necrosis of myocardium (Hæmatoxylin and eosin, × 35) blood-pressures are taken at only weekly intervals a sudden hypertensive crisis may occasionally be missed

The urea content of the blood has been measured in 24 rats presenting symptoms In 2 animals readings of 114 and 424 mg per 100 c cm were obtained In the second, however, the level had fallen to 70 mg. seven days later With these exceptions, 28 readings from 22 rats ranged from 40 to 72 mg with a mean value of 55 mg. Using the same technique, 16 control rats gave readings ranging from 34 to 81 mg with a mean of 52 mg. Nitrogen-retention is therefore not an essential feature of the syndrome

THE PATHOLOGICAL PICTURE

(1) *The "clamped" kidney* occasionally presents no macroscopic or histological abnormality, more often diffuse tubular atrophy is evident, all degrees being observed from slight to very severe, partial infarction of the kidney is not uncommon. Acute glomerular and arterial lesions such as occur in the opposite kidney have not been observed. Eliminating the cases with infarction, the degree of cortical atrophy tends to be greater in rats with the second type of hypertension described above; occasionally however the kidney appears histologically normal even in these cases In the first type, the clamped kidney usually looks normal in size but microscopically there may be slight narrowing of the cortex with diminution in size of the glomeruli in the subcapsular zone.

(2) *The opposite kidney*—To the naked eye this may appear normal, but minute yellow or red flecks are not infrequently seen under the capsule Microscopically changes are present which closely resemble those of malignant hypertension in man This resemblance is illustrated in the plate (figs 1–14) where each lesion in the rat kidney is shown with its counterpart from a case of malignant hypertension The lesions are focal in distribution, glomeruli, tubules, and interstitial tissue showing changes closely associated with acute arterial necrosis (fig. 15).

Medium and small *arteries*, particularly the vasa afferentia, are affected; the simplest change is a hyaline or fibrinoid swelling of the vessel wall with disappearance and fragmentation of nuclei and dilatation of the lumen (figs 1 and 2). More frequently, what may be described as an "explosive" type of lesion is seen in which all coats of the vessel wall may be necrosed, and may contain fibrin and red blood-cells; the lumen is narrowed by the intimal swelling and there is an adventitial cellular reaction of an inflammatory type (figs 3 and 4) In addition to these acute lesions a cellular thickening of the intima is often observed, the lumen being greatly narrowed and the elastica interna stretched and fragmented (figs. 5 and 6).

The glomeruli show a great variety of acute and chronic changes; focal necrosis of the tuft is the characteristic lesion, the capillary loops undergoing hyaline or fibrinoid change with disappearance of nuclei and adhesion to Bowman's capsule (figs 7 and 8) Occasionally the whole tuft shows an anæmic, coagulative type of necrosis with swelling of the capillary walls and obliteration of their lumina (figs 9 and 10). In some glomeruli the necrotic areas contain fat droplets and large, round, foam cells Another striking picture is produced by hæmorrhagic infarction of the glomerulus, the capillary walls having almost disappeared leaving spaces stuffed with blood (figs. 11 and 12). Less acute changes are seen, with extensive adhesions to Bowman's capsule, increased cellularity of the tuft with loss of its lobular pattern, and periglomerular fibroblastic proliferation; conspicuous enlargement and occasional proliferation of the parietal and visceral epithelium are observed (figs. 13 and 14). These glomerular changes are usually associated with necrosis of the afferent arterioles; occasionally, as in malignant hypertension, the arteriole is necrotic but the glomerulus appears normal. Acute arteriolar necrosis has been observed in the kidney as early as four days after constricting the opposite renal artery, in such early cases glomerular lesions are rarely found

The adjacent tubules are often abnormal (figs. 9 and 15); some are dilated and contain hyaline casts, their epithelium being flattened or absent, others are atrophied, devoid of lumina, and widely separated by interstitial fibrosis There is usually severe albuminous degeneration of the tubular epithelium, hyaline droplet degeneration is occasionally present but this has also been seen in the clamped kidney.

Between the affected areas the renal elements appear normal and it must be emphasised that the greater part of the kidney tissue shows no obvious change In this respect the picture differs from the classical one of malignant hypertension in man, where—particularly in the later stages—renal damage and interstitial fibrosis are more extensive This difference may be attributed to the relatively short duration of the hypertension in the present experiments

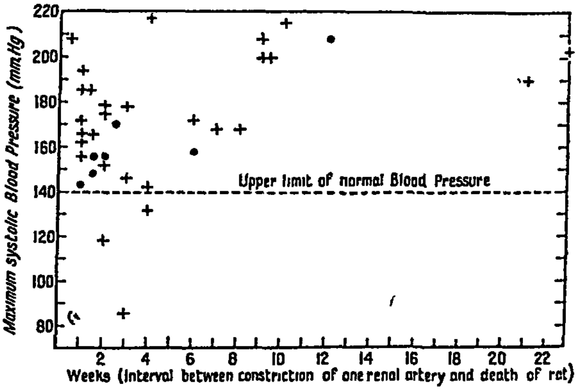

CHART 2—Incidence of acute arterial lesions in relation to maximum recorded blood-pressure and duration of hypertension + = lesions present, ● = lesions absent.

(3) *Other organs*—Acute arterial lesions similar to those described above were observed in the pancreas, intestine, stomach, and heart, and more rarely in the suprarenal glands, liver, and testis. Lesions were not found in the brain, eye, and striated muscle. The most severe lesions were seen in the mesenteric arteries where gross changes resembling those of periarteritis nodosa were not uncommon ‡ Excluding the eye and brain, which were only occasionally examined, this incidence of the lesions corresponds to their distribution in malignant hypertension. Focal necroses have been found almost invariably in the heart (fig 16), less constantly in the pancreas, and occasionally in the liver; these lesions closely resemble the *Fleckherz, Fleckleber,* and *Fleckpankreas* described in malignant hypertension

Of the 35 rats so far studied histologically, acute vascular lesions have been found in various organs in 28, and in the kidney in 27. These figures do not represent the true incidence of the lesions in hypertensive rats since we have killed only a small number of animals with the chronic type of hypertension in which vascular lesions tend to be minimal or absent Chart 2 shows the incidence of acute arterial lesions in relation to the maximum recorded height of the blood-pressure, and its duration before the animal was killed

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‡ Wilens and Sproul (1938) have described spontaneous arterial lesions, closely resembling those of periarteritis nodosa, in adult rats over the age of 500 days The rats used in our experiments were well below this age-limit.

Pathogenesis of the Lesions

Since only one kidney is operated on, renal insufficiency is an unlikely factor in the ætiology of the lesions This conclusion is supported by the absence of nitrogen retention The *fact that* the lesions do not occur in the clamped kidney appears to indicate (1) that they are not due to a circulating toxin, (2) that they are not due to simple ischæmia, (3) that vasoconstriction due to a circulating pressor substance cannot be *solely* responsible for them It is concluded therefore that the production of the lesions is related in some way to the increased intra arterial tension from which the ischæmic kidney is protected by the clip on the renal artery We can say with certainty that neither the absolute level of the blood pressure, nor its duration, is an essential factor, since the lesions have been minimal or absent in animals with a blood-pressure of over 200 mm Hg persisting for many months We incline to the belief that the determining factor is probably a sudden strain imposed on the vessel wall by the combination of severe vasoconstriction and the resultant rapid rise in blood pressure This could presumably produce a vascular necrosis which in the case of a gradually rising pressure might be prevented by the development of compensatory hypertrophy of the arterial wall The conception that arterial necrosis may result from a mechanical strain on the vessel wall is supported by the observation (Byrom 1937) that when vasopressin is administered to rats in doses large enough to blanch the kidneys, similar acute necrotic lesions are found in the renal arteries

Clinical Implications

The close resemblance between the renal lesions produced in the rat by experimental hypertension and those found in cases of malignant hypertension in man bespeaks a common pathogenesis It provides experimental support for the clinical evidence already cited that malignant hypertension is a form of essential hypertension of which renal disease is but a terminal manifestation The term "malignant nephrosclerosis" may be applied to this final stage, but it does not indicate the true nature of the disorder It is to this stage that the term "chronic interstitial nephritis" is also applied the lesions in the kidney being regarded as "inflammatory" Since a similar picture occurs in the hypertensive rat under conditions which apparently exclude the influence of "toxic" agents, we infer that such "inflammatory" changes can result from a hypertension severe enough to produce arterial necrosis

The demonstration that arterial lesions can be produced in the kidney by experimental hypertension also throws light on the clinically malignant course of the human disease, for when vascular lesions occur in malignant hypertension as a result of the high blood pressure, they will presumably give rise to a reduction in renal blood-flow This may be expected to aggravate the hypertension and so a vicious circle will be established in which a rising blood pressure is associated with progressive renal destruction

Furthermore we have already described in the introduction the striking and hitherto perplexing similarity, both clinical and histological that may characterise the terminal stages of chronic nephritis and malignant hypertension The same manifestations may occasionally be *observed in the terminal* phase of *any* form of chronic renal disease with high blood-pressure It thus appears that not only "essential" hypertension but also hypertension secondary to renal disease can set in motion the vicious circle which we have envisaged above This "malignant termination" has therefore no specific character derived from the original disease but is an attribute of the high blood-pressure which is common to all

It is however desirable to restrict the term "malignant hypertension" to its present usage—namely, the malignant form of *essential* hypertension—thereby emphasising its fundamental difference from chronic nephritis and preserving the existing subdivision of essential hypertension into benign and malignant forms

The clinical symptoms in the hypertensive rat also stand in close relation to the human disease The syndrome we have described of weakness, wasting, coma, and convulsions has been produced by operative interference with one kidney and is not attended by renal insufficiency In animals moribund from this condition immediate and lasting improvement, with return of the blood pressure to normal, has been produced by excision of the ischæmic kidney The syndrome appears to be a close counterpart to hypertensive encephalopathy in man (the pseudo uræmia of Volhard)

Summary

Sustained hypertension has been produced in rats by partial occlusion of one renal artery

Histological changes are often found in the opposite kidney and these appear to be identical with the lesions of malignant hypertension in man It is concluded that these changes are due to the vascular strain imposed by a rapidly developing hypertension, renal failure apparently plays no part in their origin These findings strengthen the conception of malignant hypertension as a form of essential hypertension in which the renal lesions are a secondary manifestation

In hypertensive rats the occurrence of these lesions is frequently associated with a clinical syndrome consisting of weakness, wasting convulsions, and coma, which is not accompanied by nitrogen retention and which is relieved by excision of the ischæmic kidney

The similarity both clinical and histological, which frequently characterises the terminal stages of various forms of chronic Bright's disease is attributed to a vicious circle in which hypertension produces renal vascular lesions and these by further reducing the blood flow through the kidneys, aggravate the hypertension and lead to rapidly progressive renal destruction and functional insufficiency

We should like to express our gratitude to Prof Arthur Ellis, whose clinical studies of Bright's disease have stimulated these investigations, and to Prof Hubert M Turnbull in whose department the work was carried out

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THE INTERRUPTION OF COMA IN INSULIN SHOCK THERAPY

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THE treatment which Sakel introduced in 1933 consists in injecting insulin to induce hypoglycæmic coma, which is later interrupted by giving a nasal feed of sugar. Ideally, the dose of insulin and the duration of coma are adjusted so that the nasal feed alone will result in recovery within half an hour. However, from day to day sudden changes may occur in the patient's insulin sensitivity, slight but significant changes in the depth of hypoglycæmic coma may be overlooked, or for therapeutic reasons it may be decided to lengthen the coma. Consequently, few, if any, "insulin therapists" do not have to resort occasionally to intravenous injection of glucose when recovery is delayed or has been accompanied by vomiting. When such complications occur, it is legitimate to wonder whether the nasal feed had contained sufficient sugar in the dilution most suitable for rapid absorption by a hypoglycæmic patient. In some of these cases the intravenous injection of glucose does not produce immediate recovery of consciousness, and here, particularly, arise the further questions of how much glucose should be given intravenously and whether harm may result from giving too much. Some observations bearing on these questions are reported in this paper.

METHODS AND RESULTS OF INVESTIGATION

Our method has been to study the recovery period after carefully standardised comas interrupted by nasal feeds or by intravenous injections of different amounts of glucose. The time till awakening was noted, and frequent capillary blood-sugar estimations were made during the recovery period. Samples of venous blood were taken on some occasions to study any changes of hydration in the blood. Blood-sugar estimations were done by the standard Hagedorn and Jensen technique; samples which were anticipated to be over 300 mg. per 100 c.cm. were diluted five times before estimation. Other estimations were made on venous blood. Hæmoglobin was estimated colorimetrically as acid hæmatin by the standard method with the Newcomer disc. Total serum-protein values were obtained by estimation of the total serum nitrogen by the Kjeldahl titration method, the total-nitrogen figures being multiplied by 6.25.

The amount of sugar in the routine nasal feed is calculated in some clinics (Hunt and Feldman 1937) from the dose of insulin. It is, however, a common observation that different patients will have hypoglycæmia of comparable severity after widely different doses of insulin. But, since the amount of sugar needed for interruption probably depends most closely on the severity of the hypoglycæmic state, this method of calculating does not seem to be sound. The duration of coma is probably the best index of the severity of the hypoglycæmia and might provide a better method of estimating the required dose of sugar. It is of course likely that there are some slight personal differences in the amount of sugar needed to interrupt a coma of standard severity in different patients, but these could probably be ignored. It is, however, more satisfactory to have a routine practice of giving a standard nasal feed and modifying this only when necessary to suit special cases. The standard food should contain sufficient sugar to interrupt the deepest therapeutic coma and to prevent recurrence of hypoglycæmia before the dinner is given. This is probably the most widespread practice (Sakel 1938, Müller 1936, von Braunmühl 1938, Wilson 1936), and we give the routine nasal interruption feed, advocated by Müller (1936), of 600 c.cm. of weak tea containing 200 g. of sugar (33 per cent.). The tea is a useful addition, particularly because during Stage I and Stage IV this fluid can also be given as a drink which is relatively palatable when mixed with lemon. Although many patients do not need all this sugar to interrupt the hypoglycæmia, there is no evidence that an excess is a disadvantage, and it is probably advantageous to have a standardised interruption feed throughout the treatment, which simplifies the nursing and helps to standardise the carbohydrate intake. It is also customary to give some sandwiches half an hour after the nasal feed to provide a more prolonged absorption of sugar, so that the dinner need not be given till at least half an hour later, when a full appetite will have returned.

Absorption might, however, occur more rapidly from a more diluted feed or from a smaller volume of fluid. To investigate these possibilities, five patients were given on successive days, after exactly comparable comas (insulin dose and duration and depth of coma), three different nasal feeds: the standard feed (600 c.cm. of 33 per cent. sugar), half its volume (300 c.cm. of 33 per cent. sugar), and half its concentration (600 c.cm. of 15 per cent. sugar). The results of observations during the recovery period after these different methods of interruption are recorded in table I, which shows the time of awakening (to recovery of speech) and a series of blood-sugar estimations. The usual bread and butter was given three-quarters of an hour after the nasal feed on each day. It will be noted that there is scarcely any significant difference between the rapidity of recovery after 600 c.cm. of 33 per cent. sugar and that after 600 c.cm. of 15 per cent. sugar. Though the 33 per cent. sugar was perhaps slightly more effective with Patients N. and W., and slightly less effective in Db., there was no difference with the others. Consequently, without more definite evidence of a more rapid absorption of the 15 per cent. feed, it seems from theoretical reasons better to give more sugar and to use a 33 per cent. feed. But it will be noted that the recovery after 300 c.cm. of 33 per cent. sugar is probably significantly slower (Patients Db. and N.). It will be noted that one patient (Case M.) was hypoglycæmic just before the midday meal one hour and three-quarters after this feed—which did not happen with either of the other feeds. From these observations it is concluded that it is undesirable to give as a routine either less volume than 600 c.cm. or less concentration of sugar than 33 per cent. in the nasal feed.

The possibility of giving a more concentrated feed was not investigated, since it was felt that this might be too irritating to the stomach, in view of the hæmatemesis occasionally observed after the usual interruption feed. Although some clinics use slightly smaller volumes (James et al. 1937), there seems little reason to consider 600 c.cm. too bulky, since vomiting only rarely follows its administration. But, on general principles, it would seem unwise to add to this volume and so increase the probability of vomiting.

When patients have not recovered half an hour after the nasal feed, the blood-sugar is nearly always at hypoglycæmic levels, consequently, one of the causes of this complication must be a delay in absorption, due probably to the severity of the hypoglycæmia For this reason, correct treatment of such cases must provide for ensuring a blood-sugar level above normal until absorption is fully restored In cases in which vomiting has been the indication for the intravenous injection of glucose it is again important to maintain a normal blood-sugar until the stomach can once more retain some form of carbohydrate To cover both these possibilities adequately, it would seem that, whenever intravenous injection of glucose is indicated, sufficient should be given to ensure a normal blood-sugar level for some time, even without the assistance of absorption from the stomach Half an hour seems to us a reasonable minimum Though less glucose would often be sufficient when the nasal feed is in the stomach the adoption of some such routine practice is easy and should minimise the possibility of subsequent complications, especially since there may sometimes be vomiting.

TABLE I—BLOOD SUGAR VALUES AND TIME OF AWAKENING AFTER SIMILAR COMAS (INSULIN DOSE AND COMA DURATION) AFTER INTERRUPTION BY NASAL FEEDS OF DIFFERENT VOLUMES AND PERCENTAGES OF SUGAR

Patient and data of coma	Time after nasal feed	Blood sugar values in mg per 100 c cm and time of awakening (Ax—x)		
		Nasal feed of 33 per cent 600 c cm	Nasal feed of 33 per cent. 300 c cm	Nasal feed of 15 per cent 600 c cm
N Sept 5 and 6 Insulin 140 units Sopor 2 hr Coma 3 hr – 3 hr 35 min	0 min	17		24
	5 "	29		39
	10 "	50		61
	15 "	52 Ax (15)		70 Ax (15)
	20 "	— x (20)		— x (20)
	30 "	77		95
	45 "	—		—
	90* "	No symp		
N August 30 and 31 and Sept 1 Insulin 140 units Sopor 2½ hr Coma 3½–4 hr	0 min	29	31	62
	15 "	— Ax (15)	—	95 Ax (15)
	30 "	180 x (20)	152 Ax (20)	160 x (20)
	45 "	125	115 x	145
	90* "	No symp	57 (symp)	88 (no symp)
C Sept 5 and 6 Insulin 88 units Sopor 3 hr Coma 3 hr 20 min – 4 hr 2 min	0 min	31		32
	5 "	48		47
	10 "	84		70
	15 "	84 Ax (15)		70 Ax (15)
	20 "	— x (20)		84 x (20)
	30 "	111		95
	45 "	—		—
	90* "	No symp		No symp
C August 31 and Sept 1 and 2 Insulin 88 units Sopor 2 hr Coma 3¼ hr – 3 hr 55 min	0 min	—	29	25
	15 "	85 Ax (15)	74 Ax (15)	77 Ax (15)
	30 "	120	83	113
	45 "	180	71	131
	90* "	141	127	154
W Sept 5 and 6 Insulin 48 units Sopor 3 hr Coma 3 hr, 20 min – 3 hr 57 min	0 min	38		32
	5 "	48		57
	10 "	75		74
	15 "	101 Ax (12)		77 Ax (15)
	20 "	111 x (16)		72 x
	30 "	141		110
	45 "	—		—
	90* "			
Db August 30 and 31 and Sept 1 Insulin 48 units Sopor 1 hr 40 min Coma 3 hr – 3 hr 50 min	0 min	32	43	34
	15 "	76 Ax (15)	99 Ax (15)	155 Ax (15)
	30 "	100 x (20)	72 x (20)	125 x (20)
	45 "	100	70	180
	90* "	—	113	134

* Approximately (before dinner) Symp = symptoms.

TABLE II—INTERRUPTION BY 100 C CM OF 33 PER CENT GLUCOSE GIVEN INTRAVENOUSLY WITHOUT NASAL FEED BLOOD-SUGAR VALUES

Patient	Blood-sugar (mg per 100 c cm)			
	Before interruption	Immediately after interruption	½ hr after	¾ hr after
G (June 1, 1938)		343	106	
PG (June 1, ")	36	282	57 (symp for 3 min)	
P (June 1, ")	27	395		36 (symp for 5 min)

TABLE III—INTERRUPTION BY SIMULTANEOUS ADMINISTRATION OF 100 C CM OF 33 PER CENT GLUCOSE INTRAVENOUSLY AND 600 C CM OF 33 PER CENT SUGAR BY NASAL TUBE BLOOD SUGAR VALUES

Patient	Blood sugar (mg per 100 c.cm)	
	Immediately after interruption	Half hour after interruption
D (July 5, 1938)	458	242
S (July 5 ")	593	157
G (July 5, ")	406	231
B (July 5 ")	417	286

To determine the *amount of glucose necessary by intravenous injection* another series of comas were interrupted solely by the intravenous administration of glucose after a coma of standard duration It was found that 100 c cm of 33 per cent glucose was the amount that, in these circumstances, would maintain a blood-sugar level over 100 mg per 100 c cm for half an hour after its administration The results of blood sugar estimations on a series of patients before and at various periods after the giving of 100 c cm of 33 per cent glucose without any nasal feed are shown in table II It will be seen that immediately after the intravenous injection the blood-sugar reaches values of approximately 300 mg per 100 c cm , but that within 30 minutes (Patient PG) or 45 minutes (Patient P) it may fall to hypoglycæmic levels associated with symptoms It is to be remembered that these patients were absorbing no sugar from the intestinal tract, and it is rare for patients to be so shocked that this happens Table III shows the results of a series of blood-sugars taken *after interruption by combined nasal feed and 100 c cm* of 33 per cent glucose given intravenously at the conclusion of a normal coma of similar duration. Here, however, there was presumably less interference with the absorption from the stomach than might be expected when an interruption by intravenous injection is needed; the lowest blood-sugar half an hour after the intravenous injection was 157 mg per 100 c.cm. (Patient S.) Table IV shows a similar series of blood-sugar estimations from some cases in which, after the usual nasal feed, 100 c.cm of 33 per cent glucose had later been needed and given intravenously, the indications and data of the coma for each occasion are also included in the table. It will be seen that in all cases the blood-sugar is above 150 mg per 100 c cm half an hour later. Thus, 100 c cm of 33 per cent glucose given intravenously is necessary to maintain the blood-sugar above hypoglycæmic levels for half an hour after the usual therapeutic comas when absorption from the stomach cannot be relied on. For the reasons mentioned above, it would therefore seem desirable to make a practice of giving this amount as a routine whenever interruption by intravenous injection is indicated

TABLE IV—NASAL FEED (N F) FOLLOWED IN 30–45 MIN BY 100 C CM OF 33 PER CENT. GLUCOSE INTRAVENOUSLY (I.V): BLOOD-SUGAR VALUES

Patient and date in 1938	Time between N F and I V	Blood-sugar (mg per 100 c cm)				Data of hypoglycæmia
		Near end of coma	Immediately before I V	Immediately after I V	½ hr later	
S (June 23)	45 min	32	85 (*a*)	401 (*d*)	201	Insulin 60 units Sopor from 2nd hr Coma from 3rd hr
CL (June 23)	30 „		87 (*a*)	398 (*d*)	241	..
W (July 4)	30 „	37	37 (*b*)	378 (*d*)	158	Insulin 300 units Sopor from 1½ hr Coma from 4–4½ hr
G (June 9)	20 „	36	— (*b*)	— (*d*)	172	Insulin 220 units Sopor 3rd hr Coma 3½–4 hr
CI (Mar 30)	30 „		— (*c*)	— (*d*)	155	Sopor. 2 hr 10 min Coma 3 hr–3 hr 35 min

(*a*) Incompletely awake; (*b*) unresponsive, (*c*) incompletely rousable, (*d*) fully awake

TABLE V—INTERRUPTION BY 250 C CM OF 33 PER CENT GLUCOSE INTRAVENOUSLY, WITHOUT NASAL FEED: BLOOD-SUGAR VALUES

Patient and data of coma (1938)	Blood-sugar values (mg per 100 c cm)			
	Before interruption	Immediately after interruption	1 hour after interruption	Subsequently
J (May 26)	38	650	.	.
G (May 26)	31	845		.
PG (May 26)	32	670	.	..
P (May 26)	34	705		.
D (August 22)	34	430	125	..
S (August 22)	39	610	228	
Db (Sept 9) Insulin 56 units Sopor after 1¾ hr Coma after 2¼ hr for ¾ hr Nothing by mouth till 2¼ hr after interruption by intravenous injection	27	690	226 (50 min)	75 min –97 90 „ –50 (? symptoms) 105 min.–39* 120 „ –36 135 „ –31

* Definite symptoms

Sometimes the patients have still only partially recovered after the administration of 100 c cm. of 33 per cent glucose, and it might be considered desirable to give such patients more glucose intravenously. Further, with these and other cases, it may be desirable to give sufficient glucose intravenously to ensure that the blood-sugar remains high for about an hour For this reason, therefore, some comas were also interrupted by intravenous injection alone, but a larger amount of glucose was administered The results of a series of blood-sugar estimations after interruption by intravenous injection of 250 c cm. of 33 per cent. glucose are shown in table V, which includes samples taken an hour later, before any carbohydrate had been given by mouth. It will be seen that an hour after the intravenous administration of 250 c cm of 33 per cent glucose the blood-sugar will still be well above 100 mg. per 100 c cm, even without the aid of any absorption from the stomach. But it will be seen (Patient Db) that the blood-sugar may begin to fall below 100 mg per 100 c cm. at 75 minutes and be definitely hypoglycæmic by 90 minutes, when no simultaneous absorption takes place from the stomach. Consequently, when it is necessary to maintain the blood-sugar above normal for an hour after interruption without any reliance on absorption from the stomach, 250 c.cm. of 33 per cent glucose should be given intravenously. We have not given intravenously to any patients larger amounts of glucose than 250 c cm of a 33 per cent solution, in view of the possible deleterious osmotic effects and because it seemed better to give a further injection an hour later if required

It is reasonable to assume that a full "head" of glucose in the blood-stream would assist the recovery of cases of "irreversible" coma But, although their non-recovery may depend partly on the persistence of tissue glycopenia *despite a raised* blood-sugar, there may be some disadvantage in raising the osmotic pressure of the blood to high levels To investigate this problem, other patients, at their normal interruption time, were given, simultaneously with a nasal feed, 250 c cm. of 33 per cent. *glucose intravenously*. Samples of blood were taken at the following times: immediately before and after the intravenous injection, three-quarters of an hour later, and just before the patients' tea in the afternoon (to get values quite independent of hypoglycæmia). Estimations were then made, on these samples, of blood-sugar, red blood-cell count, hæmoglobin percentage, total serum protein, and total serum chlorides The results are shown in table VI. It will be seen that the blood-sugar rises to levels ranging from 400 to 800 mg. per 100 c cm A comparison of the values of the other constituents estimated in the pre-interruption samples with those of the afternoon normal samples shows the slight dehydration known to occur during hypoglycæmia But the samples taken three-quarters of an hour after the intravenous injection of glucose show that this dehydration has not even been completely corrected. Some greater hydræmia than this should presumably occur if the high blood-sugar were producing much osmotic disturbance. Probably, therefore, it may be assumed that little osmotic disturbance follows the intravenous administration of this amount of glucose to these cases Hence it was concluded that 250 c cm of 33 per cent glucose may be administered intravenously to terminate hypoglycæmia without any deleterious consequences arising from osmotic disturbances Moreover, since the blood sugar will then be above normal for at least an hour, and since this extra glucose may be beneficial to cases of "irreversible" coma, for such a condition it would seem to be a desirable routine practice It may also be beneficial when there is much vomiting during the recovery period

TABLE VI—INTERRUPTION BY SIMULTANEOUS NASAL FEED (600 C CM OF 33 PER CENT SUGAR) AND INTRAVENOUS INJECTION OF 250 C CM OF 33 PER CENT GLUCOSE: BLOOD-SUGAR VALUES, AND RED BLOOD CELL COUNT, HÆMOGLOBIN, SERUM PROTEIN PERCENTAGE AND SERUM CHLORIDE PERCENTAGE TO SHOW STATE OF HYDRATION (LAST SAMPLE (3 30 P M) TAKEN JUST BEFORE TEA TO DETERMINE NORMAL VALUES UNCOMPLICATED BY HYPOGLYCÆMIA OR ITS INTERRUPTION)

Patient	Estimated values of blood constituents				
	—	Before interruption	Immediately after interruption	*40 min later*	3 30 P.M
D (July 10, 1938)	Blood sugar*	22	10[illegible]	285	104
	R B C †	4 280 000		4,530 000	4 120 000
	Hb ‡	12 4		12 4	12 5
	Total protein‡	6 8		7 05	6 4
	Serum chlor (as NaCl)*	647		641	620
B (July 10, 1938)	Blood sugar*	30	610	440	106
	R B C †	5 100 000		4 170 000	4 980 000
	Hb ‡	15 3		11 3	15 3
	Total protein‡	7 85		6 1	6 3
	Serum chlor (as NaCl)*	616		620	623
S (July 19, 1938)	Blood sugar*	31	505	330	111
	R B C †	5 140 000		4 330 000	4,690 000
	Hb ‡	15 3		12 5	11 6
	Total protein‡	7 3		7 2	7 85
	Serum chlor (as NaCl)*	632		600	590
B July 26 1938)	Blood sugar*	38	690	385	74
	R B C †	4 640 000		4,820 000	4 510 000
	Hb ‡	14 5		15·0	13 5
	Total protein‡	6 8		7 1	7 9
	Serum chlor (as NaCl)*	625		600	610
S (July 26 1938)	Blood sugar*	27	575	370	108
	R B C †	5 000 000		4 310 000	4 820 000
	Hb ‡	14 3		*20* 3	18 3
	Total protein‡	7 6		7 1	7 1
	Serum chlor (as NaCl)*	615		595	580

* mg per 100 c cm † per c mm , ‡ g per 100 c cm

OTHER TREATMENT

Though their pathology is still rather a problem, these cases of "irreversible" coma are benefited by other treatment especially the administration by nasal tube of 5 per cent *carbon dioxide in oxygen* and general treatment for shock, including particularly further fluid given intravenously Apart from these considerations, until the patient is awake further sugar must also be given, either nasally or intravenously, to prevent recurrence of hypoglycæmia As indicated above, this question arises an hour after the first intravenous injection If there is then much evidence of shock a further 250 c cm of 33 per cent glucose should then be given, preferably with 500–1000 c cm of saline also If the patient does not seem shocked, the blood sugar should be estimated and a nasal tube passed The gastric contents should be evacuated to ascertain how much of the previous feed has been absorbed, and then a further interruption feed should be given (600 c cm of 33 per cent sugar) If a large proportion of the previous feed was withdrawn or the blood sugar was low, it is wise to give also the intravenous injection of glucose and fluid recommended for the shocked patient Subsequently, it is generally adequate to give similar nasal feeds at four-hourly intervals throughout the daytime, until the patient can drink The gastric contents should be withdrawn before each feed, and if this indicates poor absorption or if the patient becomes shocked, glucose and fluid should be given intravenously in amounts similar to the previous injection By the end of the first day most of the injected insulin will have been absorbed and the danger of recurrence of hypoglycæmia will be slight

SUMMARY AND CONCLUSIONS

(1) For the interruption of therapeutic hypoglycæmic coma the most satisfactory nasal feed is probably 600 c cm of 33 per cent sugared tea Comparative studies on six patients were made of the recovery period after nasal feeds of 600 c cm of 33 per cent sugar, 600 c cm of 15 per cent sugar, and 300 c cm of 33 per cent sugar The last was slightly less effective, and, since the first two were apparently equally effective, it would seem better to give 600 c cm of 33 per cent sugar, which contains the larger amount of sugar

(2) For the interruption of therapeutic hypoglycæmic coma by intravenous injection, 100 c cm of 33 per cent glucose is necessary to ensure a normal blood-sugar for a further half hour, independent of absorption from the stomach It is suggested, therefore that this amount should be given as a routine whenever interruption by intravenous injection is indicated

(3) To ensure a normal blood sugar level for an hour after interruption of therapeutic hypoglycæmic coma by intravenous injection when absorption from the stomach cannot be relied on, 250 c cm of 33 per cent glucose should be given intravenously

(4) There is no evidence that 250 c cm of 33 per cent glucose given intravenously produces significant hydræmia when given to interrupt therapeutic hypoglycæmic coma Estimations were made of the red blood-cell count, hæmoglobin percentage, total serum protein, and total serum chloride three-quarters of an hour after this injection given simultaneously with the nasal feed and compared with normal values from the afternoon samples and those of samples before interruption from the same patients

(5) It is recommended that for cases of "irreversible" coma or with persistent vomiting during recovery an immediate intravenous injection of 250 c cm of 33 per cent glucose should be given. Recommendations are also made [illegible] the subsequent administration of sugar [illegible] of "irreversible" coma

In conclusion we wish to thank Prof [illegible] and Prof F L Golla for permission to publish these results

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GASTRIC SECRETIONS DURING PATHOLOGICAL HYPOCHLORÆMIA

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Little has been published about the composition of the gastric secretion during hypochloræmia in man. Rosemann (quoted by Soley, Lagen, and Lockhart 1938), in 1911, placed one dog on a chloride-free diet and found that the free hydrochloric acid in the gastric juice gradually diminished to zero. This observation has not been confirmed by subsequent workers

Dragstedt and Ellis (1930), working on dogs with pouches of the entire stomach, reduced the chloride concentration of the plasma by allowing all the gastric juice to drain away and found that with plasma levels lower than one-third of normal the concentration of hydrochloric acid was little reduced.

McCance (1938) studied the effect of experimentally produced salt deficiency on the volume and composition of certain body-fluids in normal persons and found that there was a variable reduction or little change in the hydrochloric acid or total chloride content of the gastric juice (He did not publish figures for simultaneous determinations of the plasma chloride and gastric acidity in this work.) Soley, Lagen, and Lockhart (1938) have used McCance's method to produce experimental chloride deficiency. They examined three healthy men over a period of a week on a salt-deficient diet, an increased output of salt being obtained by frequent periods of sweating They found that no significant alteration of the free acidity or total hydrochloric acid of the gastric juice occurred under these conditions. The degree of salt deficiency attained was not high, the lowest figures for plasma chlorides in each case being 500 mg., 554 mg., and 536 mg. per 100 c.cm.

There are few references in the literature to the nature of the gastric secretions in human beings when the level of the plasma chloride is 86 mM. (500 mg per 100 c cm) or less. This is probably because such reduction of the plasma chloride is difficult to attain in a normal person by the most rigorous experimental means, including deprivation of salt, sweating, and removal of gastric contents Lower values, however, are often found in pathological states, particularly in patients suffering from pyloric stenosis accompanied by vomiting. During a study of a series of such cases in Aberdeen Royal Infirmary we had an opportunity to investigate the character of the gastric secretions when the plasma chloride had fallen to levels as low as 60 mM. (350 mg. per 100 c cm). The present paper contains data collected from four such cases

CASE-RECORDS

Case 1.—A man, aged 29, was admitted to hospital complaining of epigastric pain of duodenal type, which had been present intermittently for six years. He had vomited frequently during the twelve days before admission. He was drowsy but answered questions reasonably well. He was anæmic (hæmoglobin 75 per cent) and very dehydrated. The stomach was dilated and contained 1½ pints of food residue and gastric juice The benzidine reaction in the fæces was positive Biochemical investigation showed him to be in a state of alkalosis and hypochloræmia. He did not respond well to medical treatment, and at operation severe pyloric stenosis was found. Gastro-enterostomy was performed, and he made a rapid recovery.

Case 2.—A man, aged 47, had experienced attacks of epigastric pain for eight years and had vomited occasionally for one year and daily for fourteen days before admission. He was found to have dehydration, alkalosis, and hypochloræmia, with a dilated stomach. He did not respond well to intravenous infusion of saline and to gastric lavage, and laparotomy was undertaken. Pyloric stenosis due to peptic ulcer was found and gastro-enterostomy performed, followed by a rapid recovery.

Case 3—A woman, aged 45, had complained of epigastric pain for two years, coming on one hour after food. Pain was relieved by food and alkaline powders. She had vomited occasionally for three months and daily for six days before admission. She had been losing weight for six months and was severely dehydrated and in a condition of alkalosis and hypochloræmia. A small fixed mass was palpable in the epigastrium to the left of the middle line and tender on pressure The gastric contents gave a positive benzidine reaction, although altered blood was not seen on naked-eye examination. Radiography revealed a large ulcer on the middle of the lesser curvature. After several days' treatment by gastric lavage and feeding on an intermediate Hurst diet, without alkalis, she began to improve, and the ulcer healed slowly.

Case 4.—A man, aged 47, had suffered for five years from epigastric pain due to duodenal ulcer. Two months before admission a radiological diagnosis of duodenal ulcer had been made. He had taken light diet and alkaline powders for three years but had shown little improvement and had been vomiting intermittently for two months before admission. When first seen he was drowsy and very dehydrated. Biochemical investigation showed him to be in a state of alkalosis and hypochloræmia. He was given intravenous infusions of a 2 per cent. solution of saline and was treated by gastric lavage and put on an intermediate Hurst diet without alkalis. Improvement was rapid, and he was discharged free of symptoms six weeks after admission.

Table I—Biochemical findings on admission in patients with peptic ulcer and hypochloræmia

Case	Plasma chloride		CO$_2$ combining power	Blood-urea mg *
	mg *	mM		
1	350	60	124	150
2	468	80	96	76
3	365	64	138	106
4	350	60	110	91
Normal values	580	100	56	30

* mg per 100 c cm

The biochemical findings in these cases on the day of admission are shown in table I.

METHOD OF INVESTIGATION

Each patient was investigated in the same manner. As soon as the hypochloræmia had been confirmed by plasma chloride estimation, the stomach was washed out with water and a fractional test-meal carried out for 2 hours The Ryle's tube was left in position for the next 24 hours, and the patients were given a diet consisting of 5 oz. of milk every hour from 7 A.M. to 10 P.M. Samples of the gastric contents were removed hourly, those taken during the day being withdrawn just before the feeds of milk were given. Each specimen was titrated against N/10 sodium hydroxide for free and combined

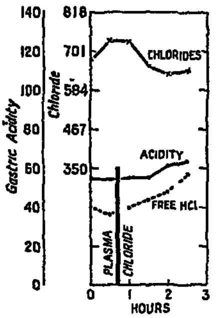

FIG 1—Chart of findings after fractional test meal given to Case 1

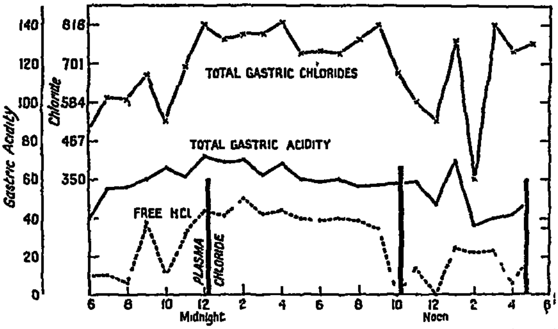

FIG 2—Chart of continuous 24 hour estimations of gastric acidity and total gastric chlorides in severe alkalosis and hypochloræmia (Case 1)

acidity with Töpfer's reagent and phenolphthalein as indicators, and the total chlorides were estimated by Van Slyke and Sendroy's method Oxalated blood was collected under paraffin, three samples being taken during the 24 hours, and the plasma chlorides were estimated by the same method The average value of the three plasma-chloride readings and of the twenty-four estimations of free acidity and total gastric chloride was calculated for each 24-hour period Similar investigations over 24 hours were carried out on several days during the patient's recovery, and the average figures are given in table II

The chloride content of 2000 c cm of milk, the amount given in 24 hours to these patients, was only 2 12 g Falconer and Lyall (1937) have estimated the basal salt requirement in health to be approximately 1–2 g, compared with the normal intake of 6–12 g daily, and it was thought that on this low-salt intake the plasma chloride value would not be materially increased during the 24 hour test period, this was found to be the case Each 5 oz of milk was estimated to contain 150 mg chloride (as NaCl) This would make little difference to the chloride concentration of each sample of gastric juice removed

TABLE II—AVERAGE VALUES OF CONTINUOUS 24 HOURLY DETERMINATIONS OF TOTAL GASTRIC CHLORIDES AND HCL AT VARIOUS LEVELS OF THE PLASMA CHLORIDE DURING RECOVERY FROM HYPOCHLORÆMIA

Case	Day	Plasma chloride		Gastric chloride mg *	Free acid	Urinary chloride mg *
		mg *	mM			
1	1st	350	60	628	26	10
	3rd	496	85	667	30	10
	10th	525	90	610	26	214
	11th	(gastro-enterostomy)				
	14th	526	90	635	28	310
	17th	570	98	680	34	298
2	1st	468	80	678	36	10
	7th	525	90	705	49	10
	9th	(gastro-enterostomy)				
	15th	578	99	715	43	204
3	1st	365	63	437	0	10
	3rd	452	77	450	6	20
	5th	601	101	500	8	320
	7th	584	100	508	10	210
4	1st	350	60	415	21	10
	3rd	449	77	502	29	20
	6th	555	95	447	25	240

* mg per 100 c cm

RESULTS

It has not been found that severe hypochloræmia causes any alteration in the acidity or chloride concentration of the gastric content Fig 1 shows the chart of the fractional test-meal carried out on Case 1, when the chloride concentration of his plasma was 60 mM (350 mg per 100 c cm) Fig 2 shows the free and combined acidity and total chloride in the same case for 24 hours immediately following the fractional test meal, when pronounced hypochloræmia was present The decreased concentration of free hydrochloric acid in the latter curve is due to adsorption by ingested milk The total acidity and total chloride remained the same Table II shows that the free acidity and total chloride concentration of the gastric juice varied little during the period of recovery from hypochloræmia in the four cases studied

TABLE III—COMPARISON OF PLASMA CHLORIDE AND C.S F CHLORIDE DURING RECOVERY FROM HYPOCHLORÆMIA

Case	Day	Plasma chloride		C S F chloride mg *
		mg *	mM	
1	1st	350	60	570
	4th	555	95	762
	10th	525	90	—
	17th	570	98	600
3	1st	365	63	642
	3rd	452	77	704
	5th	594	101	799
	7th	584	100	765
4	1st	350	60	612
	3rd	449	77	604
	6th	555	95	743

* mg per 100 c cm

The opportunity was taken to compare the chloride content of the cerebrospinal fluid (C S F) with that of the plasma in these cases The results are shown in table III The normal chloride content of the C S F is 730 mg per 100 c cm The table shows that hypochloræmia is accompanied by pronounced reduction of chloride in the C.S F McCance (1938) showed a reduction in the chlorides of the C S F in the degrees of hypochloræmia produced by experimental methods This finding might sometimes be of assistance in the differential diagnosis between alkalosis and uræmia

DISCUSSION

It has been shown by Soley, Lagen, and Lockhart (1938) that such diminution of the plasma chloride as could be obtained experimentally in human beings by salt restriction and sweating produced no proportional change in the gastric secretion of sodium chloride and hydrochloric acid. The figures obtained in the present investigation demonstrate that during periods of marked hypochloræmia the gastric mucosa can still secrete sodium chloride and hydrochloric acid to normal concentrations or even to levels higher than normal. This observation suggests an increased secretory activity of the gastric glands in concentrating chloride from a circulating medium much reduced in chloride content. As suggested by the work of Apperly and Crabtree (1931) and Browne and Vineberg (1932), factors other than the sodium-chloride content of the blood plasma play some part in the regulation of gastric secretion. Apperly and Crabtree demonstrated in mild experimental alkalosis in man that the total chloride and hydrochloric acid of the gastric contents varied directly with the increase in the plasma CO_2. Although the increase in plasma CO_2 in our clinical cases may have influenced the nature of the gastric secretion, we find difficulty in correlating our findings with those of Apperly and Crabtree, since these workers were not at the same time dealing with hypochloræmia or sodium deficiency. They gave ammonium chloride by mouth in one experiment and sodium acetate in another. McCance, on the other hand, under conditions which resulted in blood-sodium deficiency, could not demonstrate any major alteration in gastric secretion in man. We did not estimate blood sodium in our cases, but presumably some degree of sodium deficiency existed, since sodium chloride was lost in quantities up to 0·4 per cent. in the gastric secretion, as well as hydrochloric acid.

Our figures were obtained from patients suffering from peptic ulcer in whom hypochloræmia had been induced by vomiting. Whether the same phenomena could be demonstrated in a normal person is at present in doubt, since so far it has proved impossible to produce such extreme reduction in the plasma chloride experimentally. Besides the deprivation of chlorides and the increased output of salt by sweating, we have recently attempted to reduce the plasma-chloride level by continuous withdrawal of gastric contents. Mellinghoff and Heuschert (1934), using this method of continuous gastric aspiration, demonstrated a consequent reduction in blood volume in a series of five cases of gastric ulcer. Katsch and Mellinghoff (1933) aspirated an average of three litres of gastric contents over a period of three days in twenty cases of peptic ulcer. They removed quantities up to 33 g. NaCl and produced an average fall in the whole blood chloride of 51 mg. per 100 c.cm. The gastric secretion showed a 20 per cent. reduction in volume on the third day without significant change in the chloride concentration. We have found it possible to remove up to 30 g. of chloride daily by this means. In one patient, suffering from pyloric obstruction, true alkalosis has been produced. This was not accompanied by any appreciable change in gastric hydrochloric acid or total chlorides, even when the plasma chloride had fallen to 62 mM. (360 mg. per 100 c.cm.).

If the gastric secretory response to experimental hypochloræmia in a normal person differed from that shown in patients with peptic ulcer, it might be possible that an abnormal degree of secretory activity characterises the gastric mucosa of patients with peptic ulcer, even more fundamental than is suggested by the hyperacidity which usually accompanies this disease. Against this point of view are the findings of Dragstedt and Ellis (1930), who showed that normal secretory activity existed in the stomachs of otherwise healthy dogs in severe hypochloræmia due to the withdrawal of the entire gastric contents over several days. All the information available suggests that the gastric mucosa functions irrespectively of the economy of the body-fluids for chlorides. Reabsorption at lower levels in the alimentary tract normally compensates for this loss of chloride from the tissues. When reabsorption fails for any reason, secretion of sodium chloride and hydrochloric acid by the stomach continues, although chloride secretion by other routes, including the skin, choroid plexus, and kidney, is diminished or ceases completely. Obviously no degree of therapeutic reduction of plasma chloride can be of any avail in modifying gastric secretion.

SUMMARY

(1) Observations on the nature of the gastric secretions were made on four patients suffering from peptic ulcer and hypochloræmia. (2) During intense hypochloræmia the gastric secretion of sodium chloride and hydrochloric acid was unaltered. (3) The implications are discussed, and it is concluded that the gastric secretions cannot be modified by therapeutic reduction of plasma chloride.

We wish to express our thanks to Prof. L. S. P. Davidson and Prof. J. R. Learmonth for access to the patients investigated and for helpful criticism and advice. We also wish to thank Mr. J. M. Ellice for technical assistance, Mr. P. W. Walshe for assistance with graphs and preparation of the manuscript, and Sister Clark and the nursing staff of Ward 1, Aberdeen Royal Infirmary, for careful management of the cases studied.

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A SURGICAL PROCEDURE FOR ULCERATIVE COLITIS

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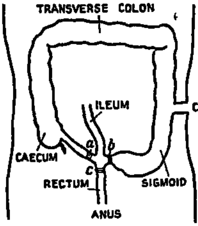
The clinical course of ulcerative colitis certainly varies in different parts of the world, and in Tasmania it would seem to be more severe than elsewhere. During the last 16 years I have not heard of a successful result following any form of medical treatment in a well-established case in this country. Most cases, particularly in young women, have succumbed within four years. In consequence, we were forced to consider surgery. Ileosigmoidostomy had fallen into disrepute, yet it appeared to be the ideal operation to achieve our object of putting the affected bowel at rest, but if we were to be successful we had in addition to introduce some means of preventing reverse peristalsis.

In the last eight years we have adopted the following technique by which the affected bowel is rested in sections An isoperistaltic ileosigmoidostomy is done very low down in the sigmoid, the opening admitting two fingers Heavy silkworm gut ligatures are tied round the ileum (*a* and *b* in figure), close to the anastomosis on its distal side, and round the sigmoid on the proximal side of the anastomosis These must be tied just tight enough to occlude the lumen There is no danger of them cutting through The first ligature prevents fæcal matter entering the cæcum, the second prevents reverse peristalsis carrying matter into the colon The obstructed area between these two silkworm bands is dealt with by a *colostomy (temporary type)* in the descending colon All the affected bowel, except the sigmoid and rectum, can no longer be irritated, and is put at complete rest The colostomy allows drainage from the affected and excluded area This drainage gradually diminishes After a suitable interval, assessed by clinical improvement (probably at least one year), a second laparotomy is done to remove the silkworm bands, digitally dilate the bowel, and put the rectum at rest by passing a silkworm band round the sigmoid distal to the anastomoses, the previously rested portion acting entirely through the colostomy After another interval a third laparotomy is done in which this silkworm band is removed, the sigmoid dilated, and the temporary colostomy closed and returned to the abdomen



Scheme of ileo sigmoidostomy In the first operation the bowel is ligated at *a* and *b* In the second these ligatures are removed and a ligature is applied at *c*

The ileosigmoidostomy is not easy, owing to the necessity of making an anastomosis in an inflamed sigmoid, and stitching has to be done carefully The second and third operations, on the other hand, are simple and short Provided heavy silkworm gut is used and tied only tight enough to occlude the lumen, it will not damage the bowel I have removed a similar ligature from the pylorus which had been applied when a gastro enterostomy was done for peptic ulcer fifteen years before

Objections might be raised to leaving a patient with a colostomy for so long a period Our experience is that drainage from the excluded area becomes less and less as the ulceration heals In any event, the alternative of a permanent ileostomy has the same objection, plus the possibility of that most distressing condition excoriation of the abdominal wall Continuity of the bowel can be retained and restored by this method of ileosigmoidostomy as soon as the inflammatory condition has subsided

We have so far carried out this procedure in 18 cases All are alive and able to do light work There have been a few instances of mild recurrence, but these have easily been dealt with by medical means The following are two typical cases from the series

CASE 1 —An unmarried woman of 20 first seen in July, 1930 Gave a three years' history of blood and mucus in stools and pain along course of colon Profound anæmia and emaciation, 10–12 motions with blood and mucus daily All medical treatment failed At laparotomy all colon found to be involved mesentery studded with glands, bowel thickened Ileosigmoidostomy done as described Pad required to gather dark catarrhal seepage from colostomy No pain Gained 42 lb in weight Laparotomy 18 months later to remove ligatures Now eight years since first operation Can do light work Occasional short recurrence of blood in stools, which responds to medical treatment

CASE 2 —A man of 32 First seen in March, 1938 Gave four months' history of 12–14 motions daily with blood and mucus, extreme loss of weight, emaciation and anæmia Medical treatment, including serum therapy, failed Condition rapidly becoming serious Ileosigmoidostomy done as described All colon, and last 2 ft of ileum, involved Heavy discharge from colostomy, which rapidly lessened Now two motions daily, no blood or mucus Increase in weight 20 lb Can do light work

SUMMARY

The results of the medical treatment of ulcerative colitis in Tasmania are uniformly bad A surgical technique has therefore been introduced by which the affected bowel is rested in two sections

In a first operation an ileosigmoidostomy and colostomy are carried out and the ileum and sigmoid ligated The ligatures are removed at a second operation and the rectum is then shut off by a ligature on the sigmoid below the anastomosis In a third operation this ligature is removed and the colostomy closed

In eight years 18 cases have been operated on and all are now able to do light or full work

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MINERS' DYSPNŒA

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THE present investigation has been confined to coal miners whose respiratory disability is such that they have had to give up their occupation Thirty six of these men have been examined Beds were made available for this work by the courtesy of the Welsh National Memorial Association, and each patient was under observation for at least six days In addition to routine clinical examination, including radiological and hæmatological examination, the patients were investigated in the following ways with a view to correlating the clinical findings with the results of quantitative measurement of any variations in their respiratory mechanism

Each man was observed carefully while he performed a measured piece of work on a bicycle ergometer This observation together with measurement of the minute volume of his expired air at rest and during and after the exercise, afforded a means of determining the degree of dyspnœa

The lung volume and its subdivisions—complemental air, supplemental air and functional residual (supplemental plus residual) air—were measured with a Knipping spirometer, the functional residual being obtained by a modification of the method of Christie (1932) *These measurements were made with a view to* using the finding by Hurtado et al (1934) and Kaltreider, Fray, and Hyde (1938) that, in emphysema at least, the vital capacity and complemental air are diminished, whereas the residual air and functional residual air are increased, and that the respiratory incapacity can be assessed from the formula

$$\frac{\text{residual air} \times 100}{\text{total lung volume}}$$

We found, however, that the vital capacity alone, stated in cubic centimetres per square metre of body surface, could be closely correlated with the degree of dyspnœa, and we decided to use this simpler measurement.

To determine whether the change in respiration in the dyspnœic patients was reflected in the acid-base balance of the body, the titratable acidity and pH of the urine were determined after a standard meal at rest and after exercise.

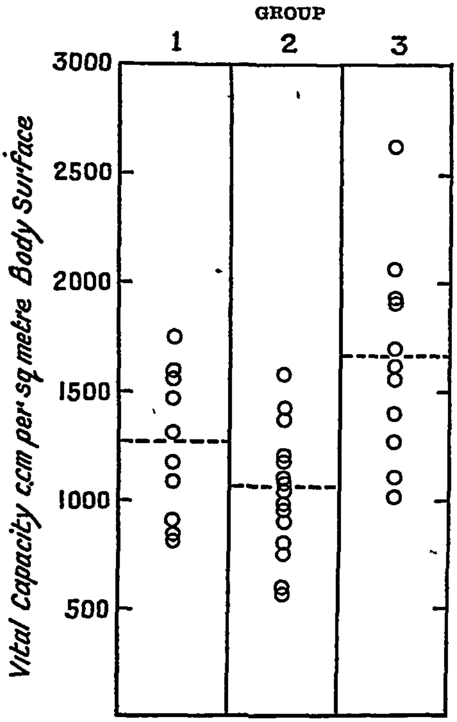

Diagram showing distribution of vital capacities in three groups of 36 coal-miners with incapacitating dyspnœa. For explanation of groups see text.

FINDINGS

By radiography the patients were readily classified into three groups: group 1, those showing the "cricket-ball" type of picture described by Cummins (1936) and named type 4 in his classification; group 2, those showing pronounced lesions (mottling and reticulation) and included by Cummins in his types 1 and 2; and group 3, those showing no radiographic evidence of gross lesion but nevertheless, like the others, suffering from an incapacitating dyspnœa. Of the 36 patients examined 10 belonged to group 1, 15 to group 2, and 11 to group 3

An examination of their vital capacities reveals that group 1 had capacities ranging from 1758 c cm. to 850 c cm, with an average of 1263 c cm per square metre of body surface; group 2 from 1599 c.cm. to 595 c.cm, with an average of 1051 c cm; and group 3 2694 c cm. to 1013 c cm, with an average of 1667 c.cm The distribution of these figures is shown in the accompanying figure. In group 2, associated with diminished vital capacity, were the more dyspnœic and severely incapacitated patients

GROUP 1

Average age 49, ranging from 42 to 62.

Average time spent underground 30 years, ranging from 10 to 50.

Average duration of dyspnœa 3 years, ranging from 1 to 6

GROUP 2

Average age 50, ranging from 37 to 56

Average time spent underground 30 years, ranging from 15 to 36.

Average duration of dyspnœa 4 years, ranging from 1 to 10

GROUP 3

Average age 42, ranging from 20 to 56.

Average time spent underground 26 years, ranging from 4 to 38

Average duration of dyspnœa 2 years, ranging from 3 months to 8 years

With regard to titratable acidity of urine, the more dyspnœic patients gave lower figures than did the less dyspnœic, suggesting that the dyspnœa is probably accompanied by a change in acid-base equilibrium; but the figures are few and vary widely in each group. Without a much fuller investigation of the acid-base balance it would be valueless to speculate about the nature of the mechanism of this probable change

Of the 10 patients in group 1 5 were receiving financial compensation, whereas of the 15 of group 2 only 1 was receiving compensation.

CONCLUSION

The respiratory damage among miners in the South Wales coal-field often causes complete incapacity for active work In these severe cases the radiograms vary considerably. The "mottled" type is the commonest The "cricket-ball" type is not only less common but also less often associated with the most severe dyspnœa In about a third of all patients examined there is no definite indication of a "dust" lesion in the radiogram, and yet even some of these patients are very dyspnœic.

The degree of dyspnœa can be closely correlated with the vital capacity per unit area of body surface The average vital capacity for the group showing "mottling" was 1051 c.cm. per square metre of body surface, and for the groups showing "cricket-ball" lesions and no definite "dust" lesions the figures were 1263 c cm and 1667 c cm. respectively. We believe that the vital capacity per unit of body surface gives, in these instances, a more reliable estimate of the degree of respiratory incapacity than do the radiograms

Further details will be furnished later, but we consider this conclusion to merit immediate publication

SUMMARY

(1) A clinical investigation was made of 36 coal-miners with an incapacitating dyspnœa (2) These patients were radiographically classified: 10 in group 1 ("cricket-ball" type), 15 in group 2 (mottling and reticulation), and 11 in group 3 (no radiographical evidence of gross lesion) (3) Group 1 had an average vital capacity of 1263 c cm, group 2 1051 c.cm, and group 3 1667 c cm., per square metre of body surface, the more dyspnœic and severely incapacitated patients thus being in group 2 (4) The degree of dyspnœa can be closely correlated with the vital capacity per square metre of body surface, which is thus a more reliable guide than the radiogram to the respiratory incapacity.

We are indebted to Prof. S. L. Cummins for inaugurating and providing facilities for this research

and to Dr H. A Ross and Mrs H Meyer for invaluable help.

Part of the expenses was defrayed by a grant from the Medical Research Council, whom we thank. One of us (J N P) held the Cecil Prosser research scholarship during the period of the investigation, and we make full acknowledgment to the University of Wales for this assistance, without which the work would have been impossible

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CLINICAL AND LABORATORY NOTES

NIGHT-BLINDNESS TREATED WITH VITAMIN A

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RECENT studies have shown that a high proportion of the children in the poorer class districts suffer from night blindness There are also good grounds for believing that impaired adaptation is sometimes responsible for motor accidents at night Persons with night blindness see normally in the day-time but in the dark are at a serious disadvantage should they look at a bright light, since for a period afterwards they are unable to see at all, and this may lead to injuries to themselves or others In a moderate case the eye responds to sudden changes from light to darkness in a period of rather more than thirty seconds, but in a severe case the vision in the dark is never adequate

To measure the deficiency some mechanical device is required, and through the courtesy of the firm of Unilever Ltd we were able to test our patient with their Biophotometer Briefly, the principle is as follows the patient looks into a light proof eye-piece, and the eyes are exposed to a lamp of standard illumination for a given period This causes bleaching of the retinal purple Next, the light is switched off and in its place there appears a quincunx of five illuminated spots arranged so that there are two bright lights on one side, two dim ones on the other, and the fifth, which is of intermediate intensity, in the centre At first the quincunx is not seen by the patient owing to the bleaching, but gradually the lights appear The time taken by the patient to see the central intermediate light is taken as a measure of adaptation Next, the procedure is reversed In the first test the lights were of fixed intensity, but now they are gradually dimmed until the patient indicates that the central spot has just disappeared The time taken from the appearance of the quincunx to the disappearance of the central spot is also taken as the measure of the adaptation rate The more severe the night-blindness, the longer is the time taken

It may be argued that there must be a large error in a test like this, owing to the difficulty in deciding precisely when the lights appear or disappear, and that this error is more pronounced the oftener the test is repeated, because the patient unconsciously anticipates the end point In practice this does not appear to be the case, provided there is reasonable coöperation by the patient

CASE-RECORD

The patient, Miss A aged 20, was seen at the oto neurological clinic of the Liverpool Eye, Ear and Throat Infirmary She complained of inability to see at night-time, of such a degree that someone had to escort her home from her place of business each evening, she also complained that her eyes ached when exposed to bright light

The physical examination was negative except for the presence of peripheral disseminated choroido-retinitis (which had already been noted by Dr T. L de Courcy, who referred her to the clinic) Further, a low percentage of free hydrochloric acid was found in the fractional test-meal Otherwise no abnormality was found The degree of night-blindness was measured biophotometrically on the lines described above, and it was found that the time taken for the central spot to disappear was 85 seconds, which was considerably longer than the average time (31 sec) found in the worst of the four groups in Gridgeman and Wilkinson's series[1] of 102 healthy persons with apparently normal vision

Vitamin A in the form of Essogen was administered The initial dose was 10,000 international units (four capsules) daily by mouth After two weeks of this treatment a second test was made (May 20, see table) The adaptation rate had improved to 60 sec without, however, any improvement in symptoms During the next two weeks the dosage was increased to 15,000 units daily The adaptation rate was now (June 3) found to have shortened still further to 22 sec, which is a normal reading The patient found that she could see very well at night. Whereas previously she had been unable to see such objects as stars or aeroplane lights, she now found these visible to her The pain in the eyes still persisted in bright light, and the improvement was not complete since she found that on going out of doors from a brightly lighted room there was a brief period before she could recognise objects satisfactorily Previously, the adaptation had been prolonged indefinitely so that she had been unable to see at all

BIOPHOTOMETER READINGS IN NIGHT BLINDNESS TREATED WITH VITAMIN A

Date in 1938	Pre bleach readings			Post bleach time value in seconds
	Reading	0 min	5 min	
		Mf c	Mf c	
May 6	Forward	0 148	0·022	
	Reverse	0 260	0·038	
	Average	0 204	0·030	85
„ 20	Forward	0 069	0·002	
	Reverse	0 216	0·002	
	Average	0 143	0·002	60
June 3	Forward	0 069	—	
	Reverse	0 022	—*	
	Average	0·045	—	22
„ 17	Forward	0 008	0·002	
	Reverse	0 069	0·002	
	Average	0·038	0·002	20

* This reading is spoilt because of the flickering of the light
Mf c = millifoot candles

Dr de Courcy re-examined her eyes and found no change in the fundi It is hardly to be expected that any changes could occur in tissues that had degenerated over a period of at least three years, but the attempt had been made to improve the night vision, and this we feel we accomplished. Finally, an exhaustive practical test was carried out in a dark room, and we were confident that she was able to see as well and as quickly as ourselves. For the past two and a half months the patient has continued to take 5000 units daily. She feels very well, does not notice any preliminary delay in adaptation, and has complete confidence in her own ability to go about unaided.

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[1] Gridgeman N T, and Wilkinson H *Lancet* 1938 1, 905

COMMENTS

After the first fortnight of treatment, when the reading had improved to 60 sec, the patient was still as night blind as ever, and we were doubtful of the value of the biophotometer. It is significant, however, that when the night vision improved there was a marked jump in the biophotometer readings.

The early delay in responding is also interesting. After the first fortnight of treatment the patient felt no different from usual as regards either the vision or her general health. On the other hand, she was quite definite that she felt very much better in both respects after the second fortnight, during which time she had increased the daily intake of vitamin by 50 per cent

The patient ate well, and the quality of the food was good There were other members of the family who did not complain of difficulty in seeing, hence it seems that the fault lay in the patient rather than in the diet

We wish to thank Dr. de Courcy for permission to report this case and for his observations on the eyes, Dr William Johnson and Mr. P. W Leatheart of the oto-neurological clinic for their kind interest, and Unilever Ltd. for enabling us to carry out the tests.

GAS GANGRENE

By Betty Walker, M B. Lond.

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In the following case gas gangrene responded to an unorthodox form of treatment.

A woman of 71 was admitted to the Elizabeth Garrett Anderson Hospital for carcinoma of the right breast The breast and axillary glands were removed, radical amputation being considered inadvisable. On the night of operation the patient became hallucinated, restless, and excitable, and tore off her dressings Five days later the edges of the wound were inflamed and tender and there was a slight blood-stained serous discharge Cultures were taken Next day the temperature rose to 102° F. and the pulse-rate to 84, and the patient felt less well The skin on either side of the wound, within a radius of 6 in. and as far down as the summit of the crest of the ilium, was œdematous and discoloured, and subcutaneous crepitations were elicited. The cultures had meanwhile produced a heavy growth of *Bacillus welchii*

An intradermal test with 0·1 c.cm. of a 1 in 10 dilution of anti-gas-gangrene serum was carried out, and the reaction was markedly positive, but in view of the patient's general condition it was decided not to desensitise her Similarly, opening of the wound and irrigation was not attempted Instead the breast was treated with glycerin and ichthyol compresses four-hourly, and Omnadin (Bayer), a compound vaccine prepared from non-pathogenic bacteria and containing bile lipids and neutral fats, was injected in doses of 2 c cm daily for three days to stimulate resistance to infection Radiostoleum, 4 capsules t.d.s , and ferrous sulphate, 3 grains t d.s , were also prescribed

The skin on either side of the middle third of the wound gradually sloughed and by the fifth day of infection there was a necrotic area, 4×2 in , with two short sinuses anteriorly and a longer one leading from the axilla All necrotic tissue was removed and the floor of the ulcer and the sinuses were irrigated with 1 in 4000 flavine solution. Five days later, although cultures still showed *B welchii*, the wound began to look cleaner and healthy granulation tissue began to form, while the surrounding skin was much less œdematous and discoloured Ultra-violet irradiation was then given by Dr H. A. Kellgren not only to the floor of the ulcer and the surrounding skin but also, by means of quartz applicators, to the sinuses themselves The local condition rapidly improved, with the sinuses granulating well.

On the fourteenth day after treatment was begun both films and cultures were negative for *B. welchii*. The patient was discharged a week later with a small healthy granulating wound Apart from a temperature of 102° F , and nausea on the second day of infection, she had shown no signs of toxæmia Her appetite was good and on discharge she was looking and feeling well.

My thanks are due to Miss Morna Rawlins for her permission to report this case.

REVIEWS AND NOTICES OF BOOKS

The Emotional Factor in Visceral Disease

By H. G. McGregor, M D , M.R C.P., medical registrar, Royal Sussex County Hospital London: Humphrey Milford, Oxford University Press 1938. Pp. 198. 8s. 6*d*.

For various reasons, attempts to integrate into general medicine our knowledge of the physiology and psychology of emotional states have not always been convincing The main virtues of Dr. McGregor's book are that it is painstakingly clear, practical, and detailed in language and data; that it underlines the importance of chronicity in the emotional states which lead to physiological disturbances; and, perhaps most important, that it emphasises that acute emotional states with both psychological and physiological disturbances may pass into others in which the physiological disturbances alone are to be seen. Although this last fact is well known to all who have faced a viva with a clear head and a rapid heart or audible intestinal activity, its importance in clinical work has not always been recognised.

Dr. McGregor first describes an effective medical approach to body-mind problems through a knowledge of the physiology of emotion Next he gives an account of experimental and clinical work on functional disturbances of the alimentary, respiratory, and cardiovascular systems, with a chapter on the autonomic-endocrine system, and finally he discusses the application of these matters to treatment The book is illustrated throughout by case-histories largely drawn from the author's own experience There is a profusion of detailed information on psychosomatic matters scattered throughout medical literature (to some extent it is collected in the volumes of Flanders Dunbar and Wittkower) but hitherto there has been no book to introduce the general practitioner to a subject whose importance is perhaps more obvious, and not less great, in general than in consultant practice Dr. McGregor has necessarily limited himself to the superficial aspects of his subject For this reason the descriptions given of the psychological characteristics of patients with hypertension and peptic ulcer show almost as much similarity as do the abdominal outlines of pseudocyesis and pregnancy Similarly it has not been possible to make clear the distinction between different types of anxiety state It is, too, perhaps a matter for discussion whether the optimism expressed as to the results of simple psychotherapy by the general practitioner in functional disorders will be borne out in practice Emotional stress, arising from current difficulties, is often to be seen as a precipitating factor in syndromes of this type As a rule these stresses only produce abnormal bodily results because the personality of the patient is sensitised to them by a character disorder or neurosis, which must be radically dealt with in order to prevent the subsequent relapses whose avoidance must be *a criterion of successful* treatment In discussing the compensatory nature of many psychological symptoms the author points out that removing such symptoms before there is real knowledge of their significance may be equivalent to giving morphia to a patient with acute abdominal pain, and one need not therefore be surprised that the results of suggestion are not uniformly successful

For many who have been baffled in the past by the jargon of different psychological schools this book, written by a practising general physician, will provide an opening into a field of medicine where growing knowledge is likely to lead to therapeutic advances

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Whitla's Dictionary of Treatment

(8th ed) By R S Allison, M D , M R C P , physician with charge of out patients Royal Victoria Hospital, Belfast , and C A. Calvert, M B , F R C S I , assistant surgeon to the hospital London Baillière, Tindall and Cox 1938 *Pp 1285 30s*

With the collaboration of a team of Belfast physicians and surgeons the authors have succeeded in producing a thoroughly modern reference book on treatment from an old and respected medical classic The book has been entirely rewritten, and although only well tried treatments have been included we can find no serious omissions Such conditions as bromide psychosis and biliary dyskinesia for example are mentioned, and so are the recent views on the treatment of anterior poliomyelitis The book is easy to use and well indexed, with no overlap or tiresome cross references, but it would be an advantage if references were given to the authors quoted in the text

This is one of the best works of its kind

Principles and Practice of Obstetrics

(7th ed) By Joseph B DeLee, A M , M D , emeritus professor of obstetrics and gynecology, University of Chicago London W B Saunders Co 1938 Pp 1211 63s

This standard work gives a review of the best modern American obstetric practice The English reader should have no difficulty with unfamiliar spellings, but he must also adjust himself to a newer *nomenclature* Lower segment cæsarean becomes laparotrachelorrhaphy , accidental hæmorrhage, abruptio placentæ , the R O P position becomes O D P (occipito dextra posterior) , and ergometrine is called ergonovine Different stresses are found from those in English practice, in fact the outlook is more continental than English Uterine plugging is freely advocated, an instrument for aortic compression is illustrated, and a long paragraph is devoted to the indications for the use of the colpeurynter Willett's forceps and treatment by intra uterine glycerin are barely mentioned, and sulphanilamide is given a very guarded approval Some statements are rather startling, for instance, " when Pituitary or Ergonovine is administered, which is very frequently done nowadays after the delivery of the child, the third stage is much altered " (p 142) The differences are, however, more in the interpretation of the principles of obstetrics than in the principles themselves As Prof DeLee says, after describing elaborate preparations for a normal delivery, " no contrivance can be invented to take the place of an aseptic conscience." The author makes the interesting suggestion that, to be comparable with the United States, Britain and Holland should add to their mortality-rates those for their colonies, since the American " colonies " such as New *Mexico*, where the *rate is very high*, are within their borders

The book displays evidence of an immense amount of work, every part of the subject being elaborated in great detail Full references are given at the end of each section, and the illustrations are many and excellent The British doctor wishing to compare obstetrics as practised in England and the United States could not do better than study this work, and in so doing will gain a wider insight into his craft

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Statistical Methods for Research Workers

(7th ed) By R A Fisher, Sc D , F R S , Galton professor, University of London Edinburgh and London Oliver and Boyd 1938 Pp 350 15s

Prof Fisher's textbook was originally designed to present research workers with the modern practical statistical procedures appropriate to the data they have to handle, without entering into the underlying mathematical theory It clearly fulfils its object and meets with a steady demand from investigators in many branches of science With each edition extensions and improvements have been made to deal with the newer techniques In the present issue a fuller introduction is given to the theory of orthogonal polynomials and a valuable section has been added giving an outline of the use of multiple measurements to form the best discriminant functions of which they are capable

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1938 Year Book of Radiology

Edited by Charles A Waters, M D associate in roentgenology, Johns Hopkins University ; and Ira I Kaplan, M D , director of the division of cancer department of hospitals, City of New York Chicago The Year Book Publishers London H K Lewis and Co 1938 Pp 512 10s

Dr Waters and Dr Kaplan, with the able assistance of Dr W B Firor, have again succeeded in giving a clear idea of the progress made by radiology during the previous year The literature in several languages has been searched for papers of special interest, and an excellent series of reproductions makes many interesting radiograms easily available Questions of technique receive much needed attention, and new *methods are carefully discussed*

In the diagnostic section the authors consider that valuable aid may be obtained from the examination of the mamma by means of ordinary soft tissue films mammographs, the injection of radiopaque substances into the ducts, and aeromammography (the injection of carbon dioxide into the surrounding fatty tissue) The importance of silicosis as an industrial disease and the confusion caused by some of the rarer fungoid infections make these the subject of comment, and the use of stratigraphy or tomography and of radiokymography of the chest is well shown The reproductions in the sections on the alimentary and urogenital tracts show how greatly the visualisation of details of structure has improved.

In the section on radiotherapeutics most of the important papers both on the biological effects of radiation and on methods of treatment receive notice High-voltage radiation is discussed both by physicists and by those who are trying to apply the physical findings to the treatment of patients, and the possibilities of the cyclotron are not neglected. British readers will be surprised to find that the gamma-ray rontgen is mentioned only as an experimental possibility, with no reference to published work on the practical application of dosage systems founded on this unit and in every-day use in most clinics in this country.

A Treatise on Hygiene and Public Health

With special reference to the Tropics (9th ed.) By BIRENDRA NATH GHOSH, M.B E, F.R F.P.S G, fellow of the University of Calcutta. Calcutta: Scientific Publishing Co. 1938. Pp. 720. 15*s*.

THIS excellent textbook, which was first published in 1912, has been revised and brought up to date Considerable portions have been entirely rewritten, much new material has been introduced, and the scope of the book has been expanded by the addition of two chapters on 'mental hygiene Though primarily intended for public health workers in the tropics, especially in India, it will be found useful in any part of the world, not only as a book of reference but also for practical guidance It is a sign of the times that in the successive editions increasing consideration has been given to 'personal rather than environmental hygiene and particularly to problems of diet and nutrition This is in accordance with the general shift of emphasis in modern public health work In this edition five chapters are devoted to food questions, including one on diet in India which contains some interesting particulars not usually given in textbooks

The book presents within a relatively small compass a large body of information in a lucid and readable form, and as examples of succinct statement special commendation may be given to the chapters on infection, animal parasites, epidemiology, and vital statistics Errors are few, though on p 664 the English birth-rate is said to have been 12 in 1932 The curve on the following page, which illustrates the wide variations in specific death-rates and shows an infant-mortality rate in England of 120 per 1000, is doubtless a survival from an earlier edition

Tuberculose et tuberculides nasales

By J. MARGAROT and J. TERRACOL, professors in the faculty of medicine, Montpellier Bordeaux: Editions Delmas 1938 Pp. 348 Frs 60.

IN this monograph the authors describe with commendable care the lesions affecting both the outer skin and the inner mucosa of the nose. Some of these, such as lupus vulgaris and the terminal ulceration and miliary tubercle of advanced consumptives, are definitely caused by the tubercle bacillus, while others are less certainly tuberculous The latter include lupus erythematosus, lichen scrofulosorum, papulo-necrotic tuberculide and Besnier-Boeck's disease. The authors favour the view that these affections result from embolic lodgment of tubercle bacilli in the skin, but suggest that they may be caused by unknown organisms which require for their development a soil prepared by previous tuberculous infection They also stress the frequent coexistence of syphilis in these cases, and the importance of the patient's constitution, particularly in regard to the presence of allergy The illustrations are good, but the summary provided in German and in English is poorly translated and marred by misprints There is no index Although one of a series of monographs on the ear, nose, and throat, the book will be of more interest to the dermatologist than the rhinologist

Clinical Examination of the Nervous System

(7th ed.) By G. H. MONRAD-KROHN, M.D., F.R.C.P., professor of medicine in the Royal Frederick University, Oslo; physician-in-chief to the University Clinic for Nervous Diseases, Oslo. London: H. K. Lewis and Co. 1938 Pp. 319. 8*s*. 6*d*.

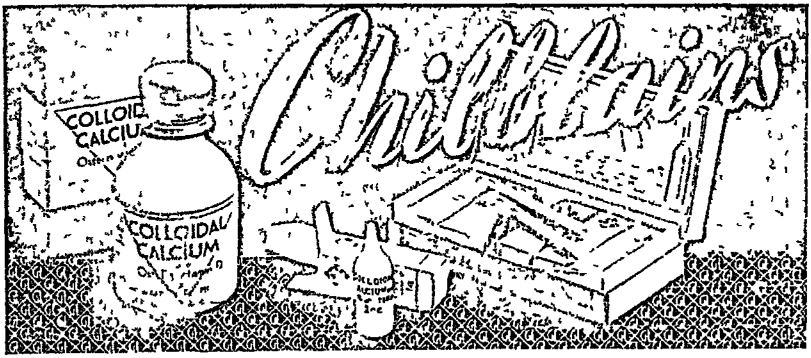
THOSE who were medical students after the war will remember a slim handbook which was their guide to the complexities of neurological examination. This has now become a more portly volume exhibiting that tendency of books to develop a middle-aged spread. The increased bulk of the book is due to Dr. Monrad-Krohn's desire to make it as complete as possible, and he now describes procedures such as ventriculography and the examination of the cerebrospinal fluid which can hardly be included in the clinical examination of the nervous system. It may be questioned whether this enlargement is really an advantage, especially to the student who needs above all that the author should select for him what is important and what is not, but the book maintains its high standard.

Dental Anatomy and Physiology

and Dental Histology. (6th ed) By T. W. WIDDOWSON, L D.S., consulting dental surgeon to King's College Hospital; and lecturer in dental anatomy and physiology and dental histology to King's College, University of London. London: John Bale, Sons, and Curnow. 1938. Pp 505 and 347. Vol. I, 30*s*; vol II, 20*s*.

SINCE the appearance of the fifth edition in 1928 many changes have been made in this well-known book, the most important being its division into two volumes The first volume covers histology, calcification, growth of the jaws, and the macroscopic anatomy of teeth in human beings The second volume, which is smaller, describes the comparative anatomy of the teeth and jaws in various species of animals This division has been made not so much because of the growth of material, though that has been considerable, but because the subject matter of the first volume changes fairly rapidly, whereas additions to our knowledge of comparative anatomy come more gradually From the student's point of view there is an obvious advantage in being able to buy the volumes separately

This book started as a notebook of the potted knowledge variety and has slowly expanded into a major textbook. Little of importance has escaped the author's eye, and the book is a marvel of completeness in the way in which it covers a subject which, though apparently narrow, has accumulated a vast literature But it is more than a collection of facts; they are set out so skilfully and with such evident appreciation of their relative importance that the task of the student is lightened as far as possible This is well seen in the chapter on calcification, where a subject of much complexity is made easily intelligible and even attractive The style is clear and easy, the illustrations are numerous and good, and the format is convenient. It is not surprising that dental students have shown their appreciation of this book.



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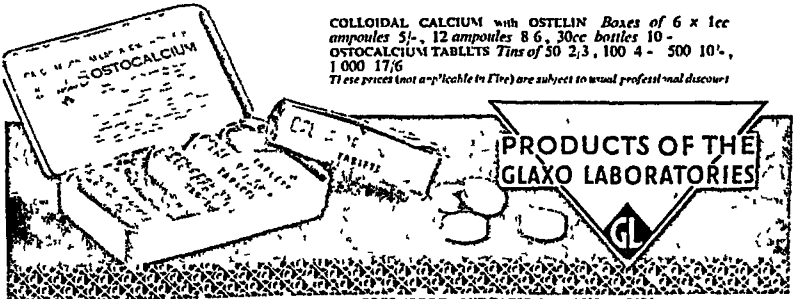
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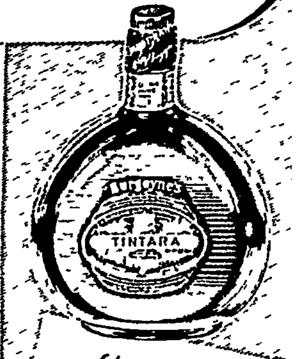

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THE LANCET

LONDON SATURDAY, JANUARY 21, 1939

MALIGNANT HYPERTENSION

Clifford Allbutt recognised that a high blood-pressure can develop in the absence of renal disease. To this primary arterial hypertension he gave the name hyperpiesia; outside this country it is now usually called essential hypertension. But there are certain cases that do not at first sight fit into either of the two categories—hypertension caused by renal disease and hypertension independent of it. They are those in which the clinical course suggests a primary hypertension, but signs of renal impairment often appear and death in renal failure is common. On the assumption that these cases are examples of slowly progressive disease of the kidney they have ordinarily been labelled chronic interstitial nephritis, or nephritis repens type IV. "The difficulty of this conception," as Prof **Arthur Ellis** has recently pointed out, "is that though these patients may die of renal failure and show at post-mortem examination renal lesions of inflammatory type, their clinical picture is essentially that of arterial hypertension of great severity with a rapidly downhill course."[1] For this reason **Ellis** and others have preferred to regard them as a variety of primary or essential hypertension, for which they use the name malignant hypertension. The lesions in the kidney they hold to be merely manifestations of the widespread vascular disorder. So far, however, this view has not won general assent, and it is here that the experimental method has once more proved its worth.

Interest in experimental hypertension was renewed some years ago when **Goldblatt** introduced an adjustable clamp whereby the renal arteries in dogs could be constricted, for it was found that in these and other mammals reduction of the blood-supply of the kidneys was followed by a persistent rise in blood-pressure. Unfortunately no close analogy between this experimental condition and malignant hypertension in man could be claimed, for there were no significant lesions in the animals' kidneys. A possible reason for this was that the kidneys were saved from the effects of hypertension by the constriction of their blood-supply; but as in dogs and rabbits in order to produce hypertension it was thought necessary to clamp both renal arteries or to clamp one artery and remove the opposite kidney the histological effects of the high blood-pressure upon the *intact* kidney have not yet been observed. It has remained for Dr **Wilson** and Dr **Byrom** to unmask them in the work reported in our present issue, and the observations they have made are clearly of first importance in relation to chronic nephritis in man. It will be seen that by partial constriction of one renal artery in the rat the London Hospital investigators have been able to produce a persistent rise of blood-pressure. Some of the rats so treated have run a course resembling benign hypertension in man: they have remained in normal health; some have maintained this health as long as nine months after the operation, and those that have been killed show no histological sign of nephritis. In other rats however—probably because the artery has been more tightly clipped—the hypertension has been associated with illness; and in these the opposite, intact, kidney has shown a series of glomerular changes closely parallel with those obtained in human cases of malignant hypertension. The arterioles in this kidney and in certain extrarenal tissues have also undergone the changes characteristic of malignant hypertension—necrotising arteriolitis, fibrinoid necrosis, and so forth. Such arteriolar changes have already been described, a few months ago, by **Wilson** and **Pickering** in the rat,[2] and by **Goldblatt** in the dog.[3] But whereas **Goldblatt** ascribed them to renal insufficiency it has been possible in the present experiments to exclude this factor.

The arteriolar and glomerular lesions in the intact kidney are attributed by **Wilson** and **Byrom** to its exposure to the full brunt of the induced hypertension; their absence in the ischæmic kidney suggests that it is protected by the clip. However this may be, it is now clear that both focal and generalised degeneration of the glomerular tuft can be caused by vascular damage alone. General recognition of the type of nephritis so produced will be of great help in analysing the lesions in chronic Bright's disease in man and in identifying genuine instances of malignant hypertension. It is to be hoped too that we are within reach of a fuller understanding of the mechanism whereby hypertension supervenes in Bright's disease, and of the vicious circle that may then ensue. The pathogenesis of this experimental hypertension is still imperfectly understood: rival hypotheses, lately discussed by **Pickering**,[4] ascribe the main rôle to overaction of the vasomotor nerves on the one hand, and to a chemical or humoral factor on the other. Although certain objections stand in the way of complete acceptance of the humoral theory great importance attaches to the existence of a pressor substance, renin, in the kidney. The interaction of several factors is suggested by **Wilson** and **Byrom**, who are unwilling to attribute the lesions solely to vasoconstriction by a circulating pressor substance. They incline to think that the determining *factor* is a sudden strain imposed upon the vessel wall by the combination of severe vasoconstriction and a resultant rapid rise in blood-pressure. This accords with **Byrom's** earlier observation[5] of somewhat similar lesions in rats after the injection of large doses of vasopressin.

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[1] Ellis, A *Lancet*, 1938, i 977

[2] Wilson C and Pickering G W *Clin Sci* 1938 3 343

[3] Goldblatt H, *J exp Med* 1938 67 809

[4] Pickering G W *Brit med J* Jan 7 1939, i 1

[5] Byrom F B *J Path Bact* 1937, 45 1

SURGERY IN ULCERATIVE COLITIS

THE relative value of methods of treating ulcerative colitis is obscured by the great variation in the severity of the disease. In Tasmania it seems to be particularly severe, for Dr. GAHA states in his paper on p. 146 that in 16 years he has not seen a single well-established case recover there with medical treatment. Elsewhere the mortality is quoted as from 10 to 40 per cent, and HURST[1] thinks that cases treated medically should not show a mortality of more than 5–10 per cent. Apart from the chances of death, however, even a moderately severe colitis may seriously handicap the patient for many years, and any procedure that claims to hasten recovery deserves attention.

Before HURST, SPRIGGS, BARGEN, and others advocated medical treatment in colitis surgical measures were used more readily than they are now, but there can be little doubt that they contributed to the high death-rate At the Mayo Clinic, for instance, the postoperative mortality in the years 1927–34 was 52 per cent. Moreover, appendicostomy and cæcostomy were based on the doubtful assumption that irrigation will eliminate infection; they rarely did more than make patients more comfortable The primary aim of surgery must be to put the affected bowel at rest by diverting the fæces, and since the rectum is usually involved this cannot be done effectively by ileosigmoidostomy alone, and an artificial stoma must be made proximal to the diseased bowel. But colostomy or ileostomy are not to be lightly embarked upon as a routine; while some patients can do without the absorptive function of the colon others cannot and fall into a severe state of malnutrition, and in the series reported by WILLARD and his colleagues[2] these operations were accompanied by an immediate mortality of 42 per cent and a total death-rate of 72 per cent, though they were admittedly often used as a last resort. In the acute fulminating case neither medicine nor surgery has much to offer, but if medical treatment is not successful within 3–4 weeks ileostomy or appendicostomy should probably be considered In the mild case, on the other hand, medical measures if not actually curative will generally allow the patient to live a useful life It is in the moderately severe case, characterised by a stationary or slowly progressive course with many relapses, that surgery may be most valuable. Apart from the emergencies of perforation or massive hæmorrhage, and such definite surgical indications as stricture and pararectal abscess, MACKIE[3] urges that the decision to operate should not be made until the patient's response to medical treatment and the probable extent of permanent damage to the bowel have been completely assessed, which may take many months. His indications for surgery are failure to improve clinically, persistent progress of the lesions seen at proctoscopy, radiographic evidence of progressive fibrosis with pseudopolypoid degeneration of the mucosa, and complications attributabl to chronic sepsis. JONES[4] agrees and recommend putting the patient to bed for two years if necessary, during which measures such as allergy vaccines, serum, diet, and drugs are to be tried but he maintains that surgery should be resorted to while the disease is still limited to the left sid and there is still a possibility of doing a colostom rather than an ileostomy This may be followed later by extirpation of the diseased bowel, and where the whole colon is involved JONES think colectomy justified if the patient remains tox and does not gain weight. In the uncommon cas in which only the proximal part of the colon i diseased JONES advises early ileosigmoidostom with subsequent removal of the affected bowel.

Dr. GAHA uses surgery as a routine. He performs an ileosigmoidostomy, shuts off the colon from the anastomosis by double ligature, and drains it by a colostomy. At a second stage, these two ligatures are removed, the intestinal contents now pass direct to the colostomy opening, while a temporary ligature below the anastomosis allows the rectum to rest. All of his patients have been able to return to light work, and such drastic surgery may well be justified where the results of medical treatment are so bad It seems unlikely, however, that the mortality of a procedure involving three major operations will continue to be nil.

PSYCHOTHERAPY BY LAYMEN

LAST week, as reported on another page, the National Council for Mental Hygiene discussed the lively question whether mental treatment should be practised solely by doctors The argument in favour of psychological treatment by laymen is, it seems, largely economic. Put a little crudely, it runs like this. treatment by expert doctors is expensive, and the majority of sufferers from neuroses (of whom there are a vast number) therefore go without treatment; non-medical psychotherapists could treat them at less cost and more thoroughly, and everyone would stand to gain The reply might be that the extent of neurotic illness is greatly exaggerated, that social adjustment and relatively simple advice suffice to prevent or treat much of it; that the advantages of psychotherapy of the ambitious time-consuming kind are by no means proved; and that the general practitioner, if he would only take the trouble, could do all that is needed for many neurotics Here again the points are put rather crudely, some of them were set out cogently by T A Ross in his Morison lectures[5] three years ago. The difference of opinion, however, is real, and it may lead to very real differences of practice.

There are in fact many non-medical people—clergymen, psychologists, lay analysts—now doing psychotherapy · should we not, with Sir HENRY BRACKENBURY, be prepared to accept a fait accompli ? The historical argument rightly takes account of the traditional place of the clergy as advisers, confessors, and comforters, though it maybe overlooks their record in the treatment of hysterics, obsessionals, and the grossly insane, which has seemed to lack psychological understanding. The clergy now have patients sent to them by some psychiatrists for "divine healing": this may cover a semi miraculous or direct intervention as the result of prayer (in which case physical diseases should also be referred to them), it may consist in psychotherapy of the usual medical kind plus the help and guidance of religion, or it may be a special form of psychotherapy which emphasises moral and spiritual ends. Some may say that since non-medical psychotherapy exists it may as well be regularised and recognised, but this would apply also to Christian Scientists or other groups, and mere defeatism in this matter is not yet called for. Some may say, too: "we all practise psychotherapy, whether we mean to or not; parsons and teachers have to do so in particular; let us therefore train them properly, and not let them push on blindly or according to their inner lights." But there is a difference between casual and professional activities, between talking prose, like Maître Jourdain, and writing prose literature, and treatment of illness requires medical knowledge. The argument in favour of instructing laymen would be stronger if it was agreed to be practicable that non medical psychotherapists should act as medical aides. Many "para-medical" groups are now recognised, including nurses, masseurs, electrotherapists, and technicians of various kinds; why not also psychotherapists? Manipulators and bonesetters are sometimes more expert than orthopædic surgeons; may not lay psychotherapists be better technicians than the psychiatrists? The answer is that physical and mental illnesses cannot be sharply separated; psychosomatic relationships, to use the modern word, have come to stay, and the psychotherapist must have a basic training in the rest of medicine. The lesson of the past is that a general medical training is needed for all specialists; the surgeons who, in SAMUEL JOHNSON's phrase, "treat by manipulative processes under the direction of the physician" acquired position and independence by way of a preliminary standard medical training. It is noteworthy that where non medical direction has been most successful, as for instance in the early days of the Retreat mental hospital at York, medical direction has after a while taken its place. During psychotherapy symptoms and problems may arise which a non medical person cannot recognise as significant. It is by no means rare for the physiogenic nature of a disorder gradually to become clear during psychological treatment, but the symptoms indicating this could easily be misinterpreted as psychogenic.

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[1] Hurst A F, *Lancet* 1935, 2, 1194

[2] Willard, J H, Pessel, J F, Hundley, J W., and Bockus, H. L, *J. Amer med Ass* Dec 3, 1938, p 2078

[3] Mackie, T T, *Ibid*, p 2072

[4] Jones, T E, *Ibid*, p 2076.

[5] Ross, T A, *Edinb. med J.* 1935, 42, 445

The recognised medical auxiliaries carry out a procedure, planned by the doctor, that is pretty well standardised; where they depart from routine, they promptly obtain sanction or direction from him. But psychological treatment is far more varied and more responsible than this; often it is unpredictable, and it is certainly not standardised. The psycho analysts concede this: "Under the best auspices psychoanalysis must be regarded as an extremely delicate procedure, at times not free from danger to the patient, taxing all the ingenuity of the most competent analyst, who continually draws on his medical knowledge and psychiatric experience."[6] Regular discussion with the doctor, or reference of difficulties to him, would obviate this, as it does in controlled treatment by trainees, but in practice this would take too long to be satisfactory. If auxiliary medical services, whether diagnostic or therapeutic, can be defined (and we throw it out as a suggestion) as those that can be carried out with benefit and without risk to the patient, by someone not medically trained but working under a doctor's direction, psychotherapy can hardly be included among them. Psychiatric social workers, it is true, do much ancillary work, but they are in frequent, even daily, consultation with the psychiatrist, and they have specialised duties that are, technically, as little in his line as nursing is in that of the average doctor. The nearest parallel is the educational psychologist, dealing with difficult children, or the occupation therapist. But they are not really comparable to the lay psychotherapist, who would be constantly dealing with the most intricate and important issues in people's lives.

CHANGES IN THE POISONS RULES

LAST month the Home Secretary issued various amendments of the Poisons Rules. The changes took effect from New Year's Day. Although the Home Office most properly circulated a detailed notice to the trade and other organisations affected, the law is becoming almost too complicated for the average medical man to master. A few points may perhaps be singled out for mention. Rule 7 has been altered so as to provide that a signed order for a "first schedule poison" (not being a poison within the Dangerous Drugs Acts), if given by a duly qualified medical practitioner, registered dentist, or registered veterinary surgeon, or by a hospital, infirmary, dispensary, or clinic need not name the purpose for which the poison is required, provided that the seller is reasonably satisfied that the poison is required for medical, dental, or veterinary treatment. The highly technical rules about labelling are changed in various respects. An amendment to the sixth schedule to the rules enables the proportion of insulin in a preparation to be stated in terms of units of activity as defined in the British Pharmacopœia. Glass bottles containing local anæsthetics for injection in the treatment of human beings or animals need no longer have a fluted outer surface. Benzedrine (amphetamine) and related substances (except when contained in inhalers) are to be found in part I of the Poisons List; so are sulphanilamide and related substances. Both these groups are also brought within various schedules to the Poisons Rules. But, when contained in inhalers, benzedrine and related substances are now exempted from all control under the Pharmacy and Poisons Act or the Poisons Rules, as also are dinitrocresols in substances other than preparations for the treatment of human ailments. Lastly, by a small change in the fifth schedule to the rules, a listed seller may now sell ointments containing nitrobenzene for the treatment of animals and also photographic solutions or materials containing metallic oxalates (other than potassium quadroxalate).

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[6] Oberndorf, C P Psychoanal Rev 1927 14, 251

ANNOTATIONS

CIGARETTE-SMOKING

Dr. Segal, of Rochester, N Y, has revived the question of the origin of the effects of smoking, this time in relation to fatigue [1] His observations are as objective as possible and he emphasises the danger of assuming that perpetual tiredness is always due to over-smoking Nevertheless he records definite relief after breaking the habit in several long-standing cases in which other remedies had failed; the patients gained weight and their symptoms disappeared Everyday reports from those who stop smoking furnish no reason for doubting these findings The heroes themselves may complain of insomnia, and their wives of their increased irritability, but these effects pass off—often, it is to be feared, because of a relapse, but naturally if given time The increase in weight, resulting perhaps from emancipation of the palate and improved appetite, is almost universal, while the feeling of bounding vitality and missionary fervour needs no description *There seems to be little doubt that of the multitude* of vapours in cigarette smoke, nicotine is alone capable of causing systemic symptoms directly But there is something insidious about cigarettes They are too easily manipulated, and one becomes almost as addicted to the movements as to the tobacco. One result is excessive smoking; another is that the cigarettes cease to taste of anything in particular and often give rise to a mild but persistent irritation of the pharyngeal mucosa, most evident in the early morning More subtle is the feeling, to which an extraordinary number of people admit, that they smoke too much—that cigarettes are a waste of money and so forth It is not impossible that in sensitive men and women this mental conflict, together with poor *appetite and local reactions to* irritation, may do much to take the edge off that zest for living which is supposedly normal It must be remembered that the symptoms of feeling "below par" are vague and subjective, and in accounting for them one must allow for vague and subjective causes and not expect to find everything explained by the definite action of a drug like nicotine.

It is for this reason that we hesitate to take for granted Segal's conclusion that, because "de-nicotinised" cigarettes and good filters failed in his experiments to abolish certain responses to cigarette-smoking, the 40 per cent or so of nicotine remaining was necessarily responsible The test response was the immediate increase in pulse-rate and depression of the T wave of the electrocardiogram caused by smoking half a cigarette It appears, though it is not definitely stated, that the subjects were habitual smokers, in which case the existence of a conditioned reflex should have been excluded It would be interesting if less than half the usual nicotine content were *shown to be almost as toxic* as the full quantity It would be even more interesting if the effect on non-smokers were correspondingly reduced, while the effect on the smokers remained undiminished.

THE PLACENTA AND TOXÆMIA

THE cause of the toxæmias of pregnancy has long been notorious *matter for speculation*, and the fact that it remains so is a perpetual challenge The pathological changes are so definite and the results so grave that it seems our ignorance regarding ætiology cannot last much longer Yet one promising explan tion follows another into oblivion—even the hormon have fallen short of expectations—and hope deferr *begets* an uncritical scepticism In other circu stances, we might have been enthusiastic about t views of Bartholomew [1] of Atlanta There is perha nothing very striking in his idea that the toxæm *may be due to absorption of breakdown produc* from placental infarcts, but his claim to be able reconstruct a case of which he has no previous know ledge from an examination of the placenta, would, *sustained, amount to definite proof of a relationsh* He indicates various anatomical and physiologic features which make the placental vessels partic larly susceptible to occlusion, and strongly maintai that the *toxæmia is due to the infarcts rather tha* the infarcts to the toxæmia, for maternal toxæm should affect all villi alike. Dr. Bartholome suggests careful examination of placentæ after form fixation by cutting into strips 0 5–1 0 cm thic "Grossly," he says, "the more rapid the infarctio the less conspicuous the lesion, the less firm the co sistency, the darker the colour and the greater th toxicity," and he describes five representative typ of infarct each corresponding to a certain degree o toxæmia In his view the relationship has no been appreciated earlier largely because the for assumed by the more acute infarcts is not generall realised His article is worth reading for its stimulat ing ideas about the relation of other placenta abnormalities to its vascular system, and his claim should clearly be thoroughly tested.

TREATMENT OF ASTHMA

THE annual report [2] of the clinics working unde the auspices of the Asthma Research Council bring out the importance of the emotional element in th causation of asthma and its allied complaints I children a common *predisposing factor seems to b* fear of losing parental affection or protection Thi may explain the high proportion of asthmatics—two-thirds in the series investigated at St Thomas's Hospital—who are only children or the eldest of a family, for the only child is subjected to constant parental demands for his good behaviour that tend to increase his fear of losing their approval, while the eldest child has the mortification of seeing himself supplanted in his parents' affections by another. An asthmatic attack often follows some frightening incident or emotional upset, and attacks are therefore common on Guy Fawkes' day, at Christmas, or in this last year during the national crisis It is important *in treating asthmatic children to impress on parents* the necessity of cutting the apron-strings and encouraging their children to feel independent and self-reliant Sometimes even the advice to let a child *swim or play* football is sufficient to swing the balance in his favour Nor is this element confined to children, for the removal of a husband or wife from a too anxious partner by taking the spouse into a hospital ward is often enough to produce a dramatic cure

The large psychological factor adds considerably to the difficulty of assessing the value of therapeutic measures At Guy's Hospital, for instance, last year 35 cases of rhinorrhœa were treated with solutions of inhalant proteins and 14 were cured or considerably

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[1] Segal, H. L., *Amer J med Sci.* December, 1938, p 851.

[1] Bartholomew, R A, *J Amer. med. Ass* Dec 17, 1938, p 2276

[2] A free copy of the report can be obtained from the secretary, Asthma Research Council, c/o King's College, Strand, W C 2

HOSPITAL

improved and 5 slightly improved This year 32 cases were treated with normal saline only and the results were strikingly similar, 13 being cured or much improved and 6 slightly improved Opinions differ as to the value of protein desensitisation and vaccines At Guy's they have not been thought very successful, the results of general treatment have been at least as good At St Mary's on the other hand desensitisation either by self inoculation or a "rush" course in hospital has often been dramatically effective, and the report expresses confidence that the persistent and long term results obtained from a two to three months' course of vaccines is due to a true immunological effect and not merely to suggestion In order to simplify the process of desensitisation, which at present necessitates some forty injections, attempts are being made at St Mary's to find a way of chemically altering the antigen so that the dose can be raised more rapidly without causing undue reactions At King's College Hospital a series of asthmatics have been treated with breathing exercises, but improvement has been somewhat disappointing At St Thomas's however, exercises have been found to diminish both the frequency and intensity of attacks, especially when combined with short wave therapy, and their suggestive effect has been found especially valuable in children

The divergent findings of these reports suggest that no accurate estimate of the value of therapy in the allergic diseases can be made without carefully controlled experiments

HÆMOGLOBIN KATABOLISM

IN 1937 Hamilton Fairley[1] described in the plasma of patients with blackwater fever a new blood pigment which he called pseudomethæmoglobin This had previously been confused with methæmoglobin He later demonstrated the presence of the same pigment in the plasma of patients with nocturnal hæmoglobinuria, in cases of incompatible transfusion, and in fluid from pancreatic cysts Incubation in vitro of oxyhæmoglobin with normal plasma produces this same pigment, similarly when alkaline hæmatin is added to human plasma pseudomethæmoglobin is formed suggesting that hæmatin is coupling with some protein or other nitrogenous constituent of the plasma Further study of this reaction has shown that only human plasma and monkey plasma contain a constituent capable of coupling with hæmatin to form pseudomethæmoglobin, the plasma of other mammalian species is unable to do this In association with Mr C Rimington, Ph D, and Mr R J Bromfield, Dr Fairley[2] has shown that it is the albumin fraction of plasma protein that unites with the hæmatin both the pseudoglobulin and euglobulin fractions being inactive This union appears so firm that it probably involves chemical linkage Fairley concludes therefore that pseudomethæmoglobin is modelled on the methæmoglobin pattern but that while the prosthetic group is similar the protein component is native serum albumin instead of native globulin The iron is held in the trivalent state and is even more resistant to reducing agents than methæmoglobin In view of these findings Fairley and Rimington propose that the name of this new pigment should be changed from pseudomethæmoglobin to methæmalbumin

Methæmalbumin is never found within the corpuscles and cannot act as a respiratory pigment It is derived from circulating extracorpuscular hæmoglobin liberated by intravascular hæmolysis or from blood that has escaped into cysts or other cavities. During extracellular katabolism of extracorpuscular hæmoglobin it seems, hæmatin is formed which in man and monkeys unites with albumin to form methæmalbumin, the molecular size of which renders it impermeable to the kidneys, it therefore never appears in the urine

The importance of these observations is obvious In the first place they throw fresh light on hæmoglobin breakdown Secondly, the inability of serum albumin from mammals other than man and monkeys to form methæmalbumin suggests many intriguing speculations

A HUNDRED YEARS

LAST week the *Medical Press and Circular* joined the little band of medical journals that have survived a hundred years, and the proprietors have made the occasion more memorable by publishing a full dress biography of the paper by Dr R J Rowlette its last Irish editor The founder and first editor was Arthur Jacob, a distinguished anatomist and ophthalmologist, and he and Henry Maunsell who assisted him set out to make their *Dublin Medical Press*, as it then was, both a vehicle for the dissemination of Irish medical thought and a weapon to attack current abuses within and without the profession The period was one of great activity in the Dublin school of medicine for the classes of Graves and Stokes were attracting students from all parts At the same time Richard Carmichael was attempting to bring the profession together in the Irish Medical Association and Jacob and Maunsell joined him *wholeheartedly in the cause of medical reform* The Irish Free State Medical Union and the Royal Medical Benevolent Fund of Ireland remain as memorials to their successful collaboration Those were the days of red blooded and unrestrained journalism, and Jacob was not sparing in vituperation of his opponents however eminent He did not hesitate for instance, to denounce by name those medical men who sought undue publicity in the public press or indulged in the practice known then as "going snacks" and now as fee splitting He took a leading part in the opposition to the Irish Poor Law Act, and during the great famine and typhus epidemic of 1847 onwards he turned his powerful advocacy on the fever hospitals that were often mere death traps for doctors and patients alike

In 1860 Arthur Jacob resigned the editorship to his son Archibald also an ophthalmologist Archibald Jacob lacked his father's passion for searching out abuses and he lived in times that were better mannered and more given to libel actions so that under his guidance the paper lost something in fire but gained in dignity In 1866 the *Dublin Medical Press* was amalgamated with the *Medical Circular* a London fortnightly founded in the 'fifties by James Yearsley The combined journal had separate editorial staffs in Dublin London and Edinburgh with Jacob as editor in chief and George Ross of the *Medical Circular* under him Although much of its contents still dealt with Irish affairs most of the original communications now came from England Soon after the amalgamation the name of Alfred Tindall first appeared on the title page as publisher and from then until his death in 1931 Tindall as proprietor and business manager exercised a large measure of control over the paper's policy In 1867 the paper shed the word Dublin from its name and in the same year it became the official organ of the Irish Medical Association

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[1] Fairley N H *Nature Lond* 1937 139, 588

[2] Fairley *Ibid* Dec 31 1938 p 1156

In 1901 the sixty-two-year connexion of the name of Jacob with the editorship ended with the death of Archibald Jacob, though the present-day proprietors are still members of his family Since then, though the Irish office and supplement were retained until the new Irish Free State Medical Union decided to produce a journal of its own in 1935, the paper has become more and more English in outlook, and under the successive editorships of Jellett and Rowlette in Ireland, and Gubb, Walsh, Leonard Williams, Harry Campbell, and Cecil Wakeley in London, has steadily added to its reputation

SYMPATHECTOMY FOR SKIN DISEASE

THE uses of sympathectomy in the treatment of skin disorders might be a profitable subject for joint discussion by surgeons and dermatologists Prof. Telford's short paper delivered at last year's annual meeting of the British Association of Dermatology and Syphilis, which has now been printed,[1] aroused much interest but was not discussed, although there was at least one issue on which opinions would have differed—namely, the ætiology of Bazin's disease, which is still generally regarded as tuberculous in origin, but according to Telford is curable by lumbar sympathectomy. Other conditions in which, he says, preganglionic section has sometimes given good results are Raynaud's phenomenon, before supervention of sclerodactyly or necrosis, and severe hyperidrosis of palms or soles So-called "trophic ulceration," which is really the result of injury to anæsthetic skin, is another indication for the operation, and one whose scope is by no means small when one remembers the various nervous diseases that cause prolonged or permanent loss of cutaneous sensation. The operation of sympathectomy, Prof. Telford concludes, is still on trial, but "may prove of lasting benefit in selected cases of certain diseases of the skin and subcutaneous tissues"

CELSUS DE MEDICINA

WHO Celsus was and exactly when he lived is uncertain, but we know that he wrote in the first half of the first century A D and, on the authority of Quintilian, compiled works on numerous subjects other than medicine Some authorities have therefore considered him to have been an encyclopædist, a compiler of popular treatises on law, military strategy, agriculture, philosophy, and rhetoric, for Quintilian tells us that he left volumes on all of these, and incidentally calls him a man of mediocre talent for all that. Some modern scholars, among them Marx, whose opinion has great weight, have thought that in his "De Medicina" Celsus simply translated into Latin an earlier Greek treatise on medicine Mr. W. G. Spencer, who has now completed his translation of this work,[2] holds a contrary view, and many passages and expressions in the text certainly convey the impression that Celsus was a practising physician. Encyclopædic knowledge was a characteristic of the learned men of the period The philosopher Favorinus, who lived a century later, was also an authority on grammar, archæology, and medicine, and Aulus Gellius has left an account of the visit the philosopher Taurus paid him when he was sick with a fever, and of the discourse of Taurus on the clinical lessons to be derived from a study of the arteries and veins So there is no inherent improbability in the fact that a learned physician should have been accepted as an authority on a multiplicity of subjects

Where the text is sound—and the scholarship of Marx has solved many of the translator's difficulties—there is no substantial obscurity in Celsus. He wrote in a Latin of the best classical period, in well-ordered sentences, and in clear and precise phraseology. Mr Spencer succeeds in conveying the author's meaning faithfully in nervous and rhythmical prose, though one may quarrel with his monotonous iteration of certain conjunctions, which though native to Latin are less common in the best English Mr. Spencer has compiled a list of the drugs that Celsus mentions and has used his specialist learning in an attempt to identify them Some are well known and in use today, others are doubtful, and a few are completely unidentifiable But the list brings home to us how the Rome of the first century drew on the whole world for its imports. Costus, for instance, was made from the roots of "Saussurea lappa, a plant of Kashmir," a region which Cæsar never knew Zingiber too was familiar to the Romans and came from the more distant east. On the whole a reperusal of the "De Medicina" leaves us with an increased admiration for the sum of medical attainment in the first century, for the soundness of received opinion and the rejection of charlatanism, and the freedom from the cruder superstitions which were later to obsess the healing art

SIGNIFICANCE OF PAIN IN CARDIAC INFARCTION

THE theory that angina is the result of myocardial ischæmia, which leads to the accumulation of metabolites capable of stimulating afferent nerves, has been generally accepted, but it is hard to explain in this way the existence of extensive coronary sclerosis without symptoms and the occurrence of cardiac infarction without pain The pain of cardiac infarction may certainly be less, and may perhaps even be absent, where the central nervous system is comparatively insensitive, and Boyd and Werblow[1] suggest that there may sometimes have been a previous infarction near by that so damaged the cardiac nerves as to make the area insensitive.

Recently Gorham and Martin[2] have revived the old idea of vascular tension as the origin of cardiac pain. Of 100 cases of coronary occlusion that they studied at autopsy, 42 had not had cardiac pain in their fatal attack. It was found that the patients who had no pain were older than the rest, their predominant symptom had usually been dyspnœa, and they had less often given a history of previous attacks. Furthermore, in the pain-free group a pericardial rub had less often been heard, and at autopsy these cases showed less of the milder grades of coronary sclerosis and more old infarcts The situation of the infarct and the frequency of ventricular rupture were not significantly different in the two groups Pain had always been a symptom wherever acute infarction and actual thrombosis in the coronary artery were found, whereas it was absent or a secondary symptom in all but one case in a group with coronary narrowing and old infarction but no thrombosis

The authors suggest that tension on the coronary artery proximal to an obstruction can cause pain, and that it is most likely to arise in this way when a thrombosis occurs in an artery which previously had a relatively good channel and whose wall remains elastic and contains healthy nerve fibres. In dogs they found[3] that tension on the wall of the coronary artery by traction on threads passed through the adventitia in such a way as not to obstruct the circulation readily produced symptoms which were interpreted as indicating pain. Similar symptoms were produced less readily by a ligature which occluded the artery. After ligation the electrocardiogram showed changes indicating ischæmia, but the tension experiment was without effect on the tracing. These arguments are, however, not convincing, for the absence of pain in infarction seems just as explicable on the condition of the artery and myocardium distal to an obstruction as on the state of the artery proximal to it, and the animal experiments demonstrated only that traction on the perivascular nerves is capable of producing pain. Nevertheless the findings are important, and it may yet be proved that vascular tension is one of the factors that modify the symptoms of myocardial ischæmia.

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[1] Telford, E D, *Brit J Derm Syph* December, 1938, p 637.

[2] Celsus *De Medicina* Vols II and III Translated by W. G. Spencer, M S Lond, F R.C S London William Heinemann 1938 Pp 449 10s per volume

[1] Boyd, L J, and Werblow, S C, *Amer J. med Sci* 1937, 194, 814.

[2] Gorham, L W, and Martin, S J, *Arch intern Med* November, 1938, p 821

THE G.M.C. UNDER FIRE

THIS is still a country where authority can be challenged. The General Medical Council, challenged not for the first time, is vigorously attacked in a memorandum issued by the Medical Practitioners' Union. The General Medical Council's members are too old; they are out of touch with the body of general practitioners; the wrong representatives are chosen. The council, as at present constituted, cannot possibly perform the simultaneous functions of supervising medical education and enforcing professional discipline. An independent commission should review the scope of medical education before and after qualification. The prospective practitioner should be taught the "socio-political responsibilities inseparable from medical practice." The commission should arrange for "*only one portal of entry into the profession*"; the multiplicity of universities and other corporate bodies which at present conduct qualifications must give way to a single standard of qualification; the existing diversity means that some qualifications are greatly superior to others; independent inquiry might well show that the lowest standards are really too low. The G.M.C. is letting in alien doctors to the prejudice of practitioners born and educated in this country. As for discipline, the council's functions ought to be surrendered to an entirely new body whose members should be more than half composed of directly elected registered medical practitioners, no member to be a day older than 65. This new tribunal is to have not only the traditional jurisdiction over the proper conduct of professional men entrusted to the G.M.C. under the Medical Act eighty years ago, but also the disciplinary powers of the Ministry of Health arising out of the contractual relationship entered into by doctors who undertake health insurance work. From the decisions of this new tribunal there is to be a right of appeal (presumably to the High Court) on an almost unprecedentedly wide front—both on questions of law and on issues of fact and also by way of rehearing. Such are some of the points in the memorandum.

There is nothing good or bad, said Shakespeare, but thinking makes it so. The Medical Practitioners' Union has done plenty of thinking; the resultant criticism is a healthy process from which the G.M.C. will not claim to be immune. Some of the imperfections, if found to be of substance, could be remedied without revolution. The choice of younger men and the retirement of the too mature could be achieved by voluntary effort. The Privy Council could use its existing authority to prevent the abuse of a system of sub-standard qualifications. A complaint that the professional rules against canvassing and advertisement are infringed with impunity by eminent persons could be met by action (open to members of the M.P.U. itself) to enforce the rules. For the rest the criticisms must be examined on their merits. The justice dispensed by the G.M.C. upon applications to remove a name from the register is scarcely so perverted as the memorandum might suggest. Many years ago Lord Justice Fry paid tribute to the statutory process of "due inquiry" under the Medical Act. In spite of the union's inevitable reference to one famous case of the professional association between registered and unregistered practitioners, after which "an eminent manipulative surgeon was honoured by the King with the accolade of knighthood," it has yet to be shown that the disciplinary work of the council has forfeited confidence since the Lord Justice spoke. The memorandum observes more than once that the G.M.C. exercises its disciplinary jurisdiction on behalf of the state. Parliament delegated to the council the duty of formulating the standard of professional ethics and of maintaining that register which would enable the public to distinguish between qualified and unqualified men. The method of removing a name is not greatly different from the method by which the benchers of the Inns of Court, a far less democratically constituted body than the G.M.C., inflict an even greater penalty upon the delinquent barrister. Those who incur that penalty may have their grievance; but among the doctors as among the barristers there is probably a general preference for a tribunal composed of members of the profession rather than for another court. The jurisdiction of the Minister of Health in administering the National Health Insurance Acts is not likely—since public money is involved—to be handed over to a new body. Panel work is a non-compulsory part of a state medical service and some of the M.P.U.'s criticisms seem more likely to be met if and when all medical practice is organised directly under the state. This is not to say that no improvement is possible in the constitution and functions of the G.M.C. To stop criticism, as Voltaire observed, one must die. *The council is not dead yet.*

THE ÆTIOLOGY OF PROSTATIC ADENOMATA

FROM time to time we have referred to evidence that stimulation by œstrogens is responsible for benign enlargement of the prostate. The hypothesis is founded on the observation—independently made in France by Lacassagne, in Holland by de Jongh and in England by Harold Burrows—that the prostate of mice enlarges under œstrogenic stimulation. Corresponding observations have since been made on other mammals, including monkeys, and the details of the hypothesis have now been formulated in such a way as to take into account the specific anatomical differences between the rodent and the human prostate.

Cunéo[1] has developed the view that enlargement of the prostate is one of several signs of a relative increase in œstrogenic stimulation which results from a "senile" decrease in the production of male hormone. He also postulates that the condition is essentially a hyperplasia of the uterus masculinus—

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[3] Gorham and Martin, *Ibid*, p. 840.

[1] Cunéo, B. *Bull. Acad. méd. Paris*, 1935, 114, 131.

an idea first put forward by Zuckerman and Parkes,[2] on the basis of experiments with monkeys The somewhat indirect evidence that he has brought to bear on it is derived mainly from a study of the morbid anatomy of the condition, and concerns the topographical relation of the adenomatous growths to the true prostatic glandular tissue which in essential structure they resemble It is of interest that in arriving at this point of view he abandoned the hypothesis that the process of adenomatous enlargement begins in the glands of Albarran—a hypothesis for which he was partly responsible and one which has always conflicted with the fact that these glands may be normal in appearance in cases of prostatic enlargement Despite their suggestive nature, Cunéo's arguments have failed to convince some of his French colleagues Barres,[3] for example, argues that a senile decrease in the production of male hormone is by itself insufficient to account for prostatic adenomata He points out that the malady is almost unknown in one race, the Tonkinese, and he thinks that inflammation plays an important part in its development Cunéo's views have also been vigorously attacked by Marion,[4] partly because of their lack of experimental support and partly because the disposition of adenomata in the prostate, according to Marion, not infrequently suggests that they do not arise in the glands of the utriculus Marion also points out that in the operation of prostatectomy the utricle or verumontanum is removed. In deciding between the arguments of these two distinguished authorities it is difficult to avoid the conviction, which indeed is stated by Marion, that the site of origin of benign hypertrophy of the prostate is unlikely to be decided by simple pathological and histological study As Marion himself writes, such study can never show whether adenomata arise in the glands of the verumontanum or in those of the neck of the bladder.

In the circumstances it is useful to refer to experimental observations since reported by Zuckerman[5] A study of the prostates of normal rhesus monkeys and those of monkeys injected for prolonged periods with œstrone showed that the growth that such treatment stimulates is restricted mainly to the region which in human anatomy is referred to as the middle lobe The area occupied by the true prostatic glands does not increase significantly, and as a result of the hypertrophy of the middle lobe the prostatic glands are displaced dorsolaterally until they come to form a false capsule to the organ The hypertrophy of the middle lobe is due mainly to development of its fibromuscular tissue, although hyperplasia and metaplasia of the "uterus masculinus" also play a part The lining of the uterus masculinus in the species used in these experiments responds like vaginal epithelium. It would therefore be of interest if similar experiments were performed on a monkey whose uterus masculinus was indeed homologous with the uterus

SPAIN

SOME of our readers may wish to be reminded of addresses to which they can send help for children and refugees in Spain The National Joint Committee for Spanish Relief have their headquarters at 4, Great Smith Street, London, S W 1, but gifts of clothes should go to them at 15, Great James Street, W.C 1 The Spanish Medical Aid Committee have sent by air some morphine, chloroform, and compressed dressings, and are arranging for two lorry-loads of further supplies to leave England before this week-end More money is needed if these lorries are to be filled, and subscriptions will be welcomed at 24, New Oxford Street, W C 1 The committee have received a telegram from Dr. Audrey Russell saying that refugees are streaming into Barcelona, where babies are already rationed at 250 grammes of milk and 100 grammes of sugar weekly. It will be impossible to provide for the new influx unless more supplies are sent immediately "Please send every ounce possible milk and sugar also increased effort to supply surgical dressings anæsthetics ambulances to deal with terrible slaughter at front" . "The heart of mankind," she adds, "must be made of stone to let this happen"

Colonel A. M. JOHNSON, M.C, T.D, assistant director of medical services, 42nd (East Lancashire Division, Territorial Army, was created a commander in the Order of the British Empire in the New Year honours list.

Group-Captain F. C. COWTAN, principal medical officer in the Middle East Command, has been promoted to the rank of air-commodore. Group-Captain Cowtan is the fourth who holds this rank in the medical branch of the Royal Air Force.

Lieut-General Sir HAROLD FAWCUS has resigned from the office of director-general of the British Red Cross Society.

FOLK-LORE AND MEDICINE

AT a meeting of the West London Medico-Chirurgical Society on Jan 13, with Dr. Maurice Shaw, the president, in the chair, Dr. J D. Rolleston read a paper on folk-lore and medicine He said that since the publication in 1927 of the late Dr Dan McKenzie's work, "The Infancy of Medicine," the subject of folk-lore in connexion with medicine had attracted little attention in this country This lack of interest was in marked contrast with the enthusiasm that it had provoked on the Continent, especially in Balkan countries, representatives of which had contributed several learned papers to the last three congresses of the International Society of the History of Medicine held at Bucharest in 1932, Madrid in 1935, and Zagreb and Belgrade in 1938. The various prophylactic and therapeutic measures in folk-lore medicine, in which the curative methods far outnumbered the preventive, could be ranged under one or more of the following headings. (1) Transference of the disease to other persons, animals, or *inanimate objects* (2) Animal, plant, or mineral remedies. (3) Religious influences, including the invocation of special saints (4) The healing power attributed to water in the form of wells, springs, fountains, and streams (5) The mystical power of odd numbers (6) Repellent and disgusting remedies, including coprotherapy, for the purpose of drawing out the evil spirit who was supposed to be the cause of the disease (7) Miscellaneous causes, such as the doctrine of signatures, constriction by rings, charms connected with death or the grave, &c The diseases and symptoms for which the largest number of folk-lore remedies and preventive methods had been applied were whooping-cough, ague (which included not only malaria but, as its etymology indicated, any acute fever), epilepsy and convulsions of any kind, rheumatism, consumption, eye diseases, skin diseases (especially warts), cattle diseases, headache, toothache, jaundice, hæmorrhages of any kind, and bites of snakes and scorpions After giving numerous examples of folk-lore medicine in whooping-cough, epilepsy, rheumatism, and jaundice, Dr. Rolleston concluded by saying that though many folk-lore remedies had become obsolete some were still practised not only by the inhabitants of remote country districts but also by educated persons in business centres

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[2] See Zuckerman, S, *Lancet* 1936, 1, 135

[3] Le Roy des Barres A, *Bull Acad méd Paris*, 1937, 117, 367

[4] Marion, *Ibid*, p 124

[5] Zuckerman, S, *J. Anat* 1938, 72, 264.

SPECIAL ARTICLES

EPIDEMIC JAUNDICE A HOSPITAL OUTBREAK

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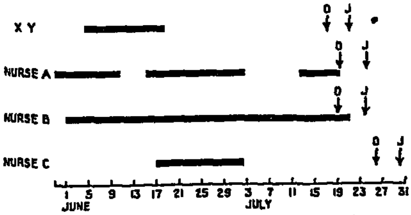
The whole question of epidemic jaundice has been reviewed so fully in recent years that one may perhaps feel that there is little to add in our present stage of knowledge We record this small outbreak partly because it resembles so closely in incidence, incubation period, and course those described by Booth and Okell (1927 28), Barber (1937), Wallgren (1936), and others, and because it differs from these, as far as we can make out, in respect of a complication not previously noted

CASE RECORDS

Our cases include a child and three nurses who became ill between July 17 and 26, 1937, all of whom had been in the children's ward of the Elizabeth Garrett Anderson Hospital at some time between June 4 and 18 We report the cases in full

X Y, a child aged 6, was admitted to the children's ward on June 4 under Miss Winifred Hall for tonsillectomy Her general condition was very poor, and operation was postponed until this was better On June 18 she was sent to the hospital's home of recovery at Barnet, where she remained with considerable improvement On July 17 she vomited and had a temperature of 102° F, on the 18th she again vomited and the temperature was 99° F, and on the same day she was seen by A L W, when the temperature was normal, the throat was somewhat injected, and otherwise there were no abnormal physical signs She continued to vomit, and on the 21st her stools were clay-coloured and she became slightly jaundiced The jaundice persisted until the 25th, when it began to fade, but the stools remained pale and the urine contained much bile until July 27 after which convalescence was uneventful The only blood count was done before the jaundice on June 6 and was normal, the Wassermann reaction was negative, a throat-swab on July 21 showed hæmolytic streptococci and these were still present on Sept 9 when the child returned from Barnet for tonsillectomy This was done on Sept 18, and the child was finally discharged on Sept 21



Periods spent in children's ward related to onset of illness
O=onset of illness J=onset of jaundice

Nurse A was in the children's ward intermittently from May 11 till July 10 (see figure). She was taken ill in the night with severe vomiting, headache, and generalised abdominal pain and was admitted to the ward on July 19 The only relevant fact in her past history was that she had had an appendix abscess drained at the age of 14 On admission the temperature was 100 8° F, pulse-rate 115, tongue furred, breath offensive, and throat injected, heart and lungs were normal, and the abdomen showed epigastric tenderness with guarding She was seen by a surgeon who did not consider the case one for operation The throat-swab grew hæmolytic streptococci, and the blood already showed a leucopenia (see table) During the next few days her condition deteriorated rapidly, abdominal pain and vomiting were severe, and she became drowsy, cyanosed, and delirious, her appearance strongly suggesting typhoid The leucocyte count continued to fall, but all other investigations were negative, blood culture taken on July 21 remained sterile, the Widal reaction was negative on July 23, the urine grew a few *B coli* only, and the stool showed no abnormal organisms On July 22 her spleen became palpable and very tender, and on the 23rd the van den Bergh test showed a weak direct and strong indirect positive reaction On the 24th her condition began to improve, and that evening the conjunctivæ became jaundiced Next day she seemed much better, although jaundice was obvious and there was bile in the urine, the liver was tender though not enlarged and became palpable two days later On the 27th blood films were negative for the *Leptospira icterohæmorrhagica*, as also were the urine and serum examined by Dr J M. Alston Dr S D Elliott investigated throat-washings and blood for viruses by animal inoculation with negative results

LEUCOCYTE COUNTS IN NURSES A, B, AND C

Case	Date (1937)	W B C	Polymorphs (%)	Lymphocytes (%)	Hyaline (%)	Large mononuclears (%)	Remarks
A	July 19	5000					
	" 20	3200					
	" 22	3900	44	32	4	10	
	" 23		50	44	2	4	Jaundice next day
	" 28	3700					
	Aug 5	6000					
	" 13	6600					Oöphoritis starting
	" 16	9800					
	" 17	8400					Oöphoritis subsiding
	" 20	9200					Return of oöphoritis
	" 27	11 200					
B	July 28	3100	64	32	1	2	4 days after jaundice
C		4300	57	41	0	0	

From this time her jaundice gradually faded and her general condition was quite satisfactory But about Aug 10 her temperature, which had completely settled, began to rise to 99° F in the evening, and there was some return of pain with tenderness, this time in the right iliac fossa By the 14th the evening temperature was 100° F and she was having considerable pain Miss I Bolton, who saw her in consultation, found tenderness and guarding in the right iliac fossa, examination per rectum showed that the uterus was forward and very tender there was tenderness in the right fornix, and the right ovary, not definitely felt, was probably inflamed and attached to the appendicectomy scar A menstrual period was about due and a diagnosis of oöphoritis was made The leucocyte count, which on the 5th was 6000 and on the 13th 6600 had risen by the 16th to 9800 The pain and nocturnal temperature persisted and then gradually subsided the leucocyte count rose gradually to 11,200 On the 27th the much delayed period made its appearance, but two days later she had another attack of pain in the right iliac fossa with vomiting and an evening temperature of 100° F., whereupon the period stopped abruptly. After this her convalescence was uneventful, and she was discharged on Sept. 14.

Nurse B was in the children's ward from June 1 to July 21, 1937. She reported sick on July 21 with a two-day history of headache, pains in the limbs, and malaise On admission her temperature was 100·8° F. and pulse-rate 98, and she was obviously ill. No abnormal physical signs were found in heart, lungs, or abdomen. The tongue was moist, throat normal, and urine normal. On the 22nd her temperature was 98·6° F. and she was much better, but on the 23rd, though the temperature was now normal, she was having considerable nausea and vomiting with coryza. The next day her throat-swab grew hæmolytic streptococci and staphylococci, and on the evening of that day, the sixth of her illness, she became definitely jaundiced; simultaneously her nausea improved and bile appeared in the urine, but her stools remained normal in colour. On the 28th she was still yellow and had considerable pruritus but was otherwise symptom-free The leucocyte count showed 3100 white cells per c mm with polymorphs 64 per cent, lymphocytes 32 per cent., large mononuclears 2 per cent, hyalines 1 per cent, and basophils 1 per cent. The jaundice disappeared in the course of the next few days, and recovery was uneventful, but on Aug. 4 the throat-swab still showed hæmolytic streptococci.

Nurse C was in the children's ward from June 17 to July 2 and was then sent to the home of recovery at Barnet for duty. On July 26 she had some nausea, vomiting, and loss of appetite, and on July 29 her stools became clay-coloured and she developed jaundice. She was transferred directly to the North Western Fever Hospital on July 30, and on admission it was noted that her skin and sclerotics were definitely icteric. The jaundice gradually faded and had completely disappeared nine days after admission. She was afebrile throughout her stay in hospital. The van den Bergh test gave a weak direct positive and a definite indirect positive reaction. A leucocyte count showed 4300 cells. polymorphs 57 per cent., lymphocytes 41 per cent., and eosinophils 2 per cent. Convalescence was uneventful, and she was discharged on Aug. 18.

DISCUSSION

The points of interest seem to be as follows:—

Source of infection.—During June the three nurses were on duty for periods varying from fourteen to thirty days in the ward where the child X Y. was a patient This children's ward was the only point of contact of these four people, and it seems reasonable to assume that the source of infection was located there. The onset of illness of three of the cases within two days, July 17 and 19, suggests a single origin. A scrupulous search through the cases in that ward at the relevant time has been negative; no trace can be found of any attack of pyrexia, tonsillitis, or enteritis, nor did any other child show signs of jaundice The child X Y. was not kept in bed but was running about the ward; so no help can be got from the position of her bed Several children had hæmolytic streptococci in their throats, as had the four cases; but that is so usual that it was not thought significant. All the nursing staff attached to the children's ward were affected except the sister; both she and the resident staff were healthy and have remained so since. The food in that ward comes from the general kitchens. In short, every effort to find a common focus of infection has failed Here we may note that in September, 1934, two nurses in this ward became ill with pyrexia and general malaise, followed by jaundice and accompanied by leucopenia. It is not easy to see how the same cause could operate, no cases having appeared in an interval of nearly three years, but we record the curious fact for whatever it may be worth

Incubation period—The removal of the child X.Y. from the hospital on June 18 seems to fix the incubation period at not less than twenty-nine and not more than forty-three days, assuming the children's ward to contain the source of infection On the same hypothesis, the period on duty in that ward of Nurse C from June 17 to July 2 and her subsequent transference to the home of recovery till her illness on July 26 place the probable incubation period in her case at twenty-four to thirty-nine days This agrees with the conclusion reached from the epidemics reported by Findlay, Dunlop, and Brown (1931), Pickles (1930), and others, in which the incubation period was three to five weeks.

Ætiology.—Here again we have to admit failure Cultures of blood, urine, and fæces remained sterile, and animal inoculations with serum and with throat-washings from Nurses A and B were all negative. The presence of hæmolytic streptococci in three cases out of four was disregarded, because this organism is found so frequently in routine examination of throat-swabs, but it is worth noting that Frazer (1935) found that sore-throats preceded jaundice in all the twenty-five children in the epidemic he describes. Dr Alston's examinations of urine and of serum for the leptospira of Weil's disease were also negative.

Differential diagnosis.—The symptoms common to the cases were nausea and vomiting, with jaundice appearing four or five days after the onset These are the classical symptoms of the clinical entity recognised as infective hepatic jaundice We would point out how easily the common features can be obscured until the jaundice becomes apparent. Nurse A, with acute abdominal pain and tenderness and severe toxæmia, gave the picture of virulent typhoid; Nurse B, with mild pyrexia, aching limbs, and coryza, ran some risk of being deemed "gastric influenza," and it was not till the jaundice appeared that any relation was obvious between the two. The consistently negative reports of the bacteriologist are helpful in differentiating this disease from those of the typhoid group and from leptospiral jaundice. Some slight help in early diagnosis can be found in the leucopenia, which may be one of the first signs Nurse A showed this within twenty-four hours of first feeling ill and by the fourth day the leucopenia and monocytosis were well marked, though jaundice had not yet appeared Not till the onset of oöphoritis three weeks later, after a period of convalescence, did the leucocyte count cease to be slightly subnormal It may perhaps be useful to emphasise here the great value of the leucocyte count in differential diagnosis once the jaundice is established. In Weil's disease there is, as a rule, a polymorphonuclear leucocytosis of above 13,000—often much higher—whereas in infective hepatic jaundice the white-cell count is usually below 8000 and may be as low as 2000 with either a relative lymphocytosis or a monocytosis or both. Our observations do not seem to throw any light on the question of the distinction between the catarrhal and hepatic forms of epidemic jaundice

Oöphoritis.—Complications appear to be unusual in infective hepatic jaundice Oöphoritis does not seem to have been recorded before, though it is interesting to note that Cockayne (1912–13), in his original description of the disease, draws a parallel on quite other grounds between catarrhal jaundice and mumps.

SUMMARY

(1) Four cases of epidemic jaundice in a child and three nurses who worked in the same ward are described

(2) The incubation period in two cases appeared to be about five weeks

(3) The common features of the disease may be obscured until jaundice becomes apparent

(4) The importance of the leucocyte count in early diagnosis is emphasised

(5) Oöphoritis was a complication in one case

We are indebted to Miss Bolton, Miss M E Landau, Dr Olivier Richards, and Miss W Hall, of the honorary medical staff of the Elizabeth Garrett Anderson Hospital, for permission to publish their cases, to Dr Elliott and Dr Alston for animal investigations, and to Dr William Gunn, of the North Western Fever Hospital, for notes of the case which came under his care

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NATIONAL COUNCIL FOR MENTAL HYGIENE

This council's fifth biennial conference on mental health was opened at the Central Hall, Westminster, on Jan 12 by the DUKE OF KENT

At the first session the subject of discussion was Is Our National Intelligence Declining? Dr L S PENROSE forecast an inevitable decline in average intelligence as a result of decreased fertility, though the process would, he thought, be a slow one Dr ALEC RODGER, however, pointed out that many factors distinguishable from intelligence played an important part in success and in the solution of major problems The decline in intelligence was nevertheless of some importance Much could be done about it by improving the lot of the less intelligent members of the community Prof J H NICHOLSON pointed out that for practical purposes the only intelligence which counted was that which was actively at work in the real world Scientific reason was a specialised instrument of thought inadequate to the wider purposes of living, if "reason" were to be man's sole guide it must include those elements which it had held for Plato, particularly its concern with values It was essential to handle experience in two ways—by scientific reason and by emotion The problem of emotion, and the values bound up with it, must be tackled

SHOULD MENTAL TREATMENT BE PRACTISED SOLELY BY DOCTORS?

Presiding at a debate on psychotherapy by laymen, Prof JOHN MACMURRAY observed that if mental treatment were to be *practised* solely by doctors a number of people like himself were going to have a very bad time As a teacher, he had always thought that mental treatment was part of his job and his clerical colleagues felt the same Science was organised common sense, and the line between a scientific technique and the ordinary dodges, used every day by teachers and ministers was a rather thin one Obviously safeguards were essential for persons who submitted themselves to psychotherapeutic operation Everyone would agree on the need for guarantees similar to those demanded from doctors of medicine, from those who claimed professional status as doctors for mental illness He hoped to find out from the discussion whether or not such guarantees could best be provided by limiting psychotherapy to qualified doctors, whether medical practitioners made or were likely to make the best psychotherapists, whether a medical degree was a guarantee of sound psychological practice, whether a psychotherapist was more reliable because he was a doctor, and indeed whether doctors should be allowed to practise at all nowadays if they were not qualified psychotherapists

The Rev F E ENGLAND, Ph D, said that every observant clergyman and physician was aware of the existence of deep psychological problems underlying many of the spiritual difficulties and physical symptoms in his parishioners or patients respectively The confessional, or interview in the minister's study often revealed a condition of spiritual distress which was the direct result of some emotional maladjustment There were two reasons why it was undesirable to leave psychological treatment entirely to medical psychologists The first was the purely practical fact that they were not available to the vast proportion of the psychologically ill The second reason was that the medical psychologist, as such was inadequately equipped to deal with certain types of mental illness The therapist could not fail to influence the patient's philosophy of life and if he worked with an inadequate philosophy of his own he must fail to handle aright the ethical and religious implications of the patient's experience The moment anyone asked the question what positive characteristics the healthy man should be presumed to possess he went far beyond mere psychology No person was in full personal health unless he was in some real sense adapted to his spiritual environment Man failed to reach his full stature until he became aware of a spiritual order which not only laid a powerful constraint on him but excited in him a feeling of adoration The therapist who groped in this realm with imperfect vision and understanding would wound rather than heal It was true that as yet few of the clergy were fully equipped to take their share in the healing of the mind and a serious attempt should be made to provide postgraduate facilities for the study of psychotherapy by those who had aptitude The general assembly of the Church of Scotland had appointed a committee to consider providing such facilities, and the problem was being approached in

England by the Guild of Pastoral Psychology and the Archbishop of York's committee Between the crude materialism of the purely scientific method and the crude supernaturalism of the mere faith-healer there was room for a technique based on a philosophy that took into account the non-material realities to which the human personality was related. There was no suggestion that trained clergymen should undertake the general practice of psychotherapy

Dr. R G Gordon said it was obvious that non-medical psychotherapy had been practised in the past, was being practised in the present, and would be practised in the future The doctor's primary concern with diagnosis was the basis of all his criticism of unqualified practice The unqualified practitioner, if left uncontrolled and unsupervised, might do a great deal of good but sooner or later would make a bad mistake The solution that would some time or other evolve was that the patient would go to a doctor for diagnosis and be referred on by him to a lay (or medical) psychotherapist. Meanwhile there was the difficulty of the General Medical Council's attitude towards "covering." Another difficulty was the delicate intimacy and subjectivity of the material of psychotherapeutic consultations, which made interim discussions between therapist and doctor very hard to arrange The training of the psychotherapist must include a high cultural background, but there was no agreed scheme of training or list of qualities necessary for the work A long and expensive personal analysis was often prescribed but no twelve psychiatrists would agree on the meaning of the term analysis These difficulties made it necessary to move slowly and cautiously, but were not insuperable

Mrs Honor Champernowne declared that the fundamentally important fact was the psychotherapist's own training (including analysis) and experience Few might be able to afford long and expensive training, but if anything it was easier for the non-medical than for the medical man Medical psychotherapists were totally unable to cope with the long waiting-lists of those who needed treatment The medical psychotherapist with inadequate training, and his personal conflicts unresolved, was quite as dangerous (if not more dangerous) to the public than the properly trained layman Some schools of psychology gave full importance to the spiritual aspect of the problem Whatever the origin of the psychotherapist, his training must be adequate

The Rev H Linton (Guild of Pastoral Psychology) quoted: "If you parsons only did your job rightly, we psychotherapists would have much less to do" Illness of the soul did not always reach such a degree as to need treatment by a fully trained medical psychologist In his thirty years' ministry he had been saddened by his inability to help certain people, and he had come to the conclusion that he must secure training in psychology in order to do his job properly. When he had sought this training he had been told that the work must be left to doctors Clergymen needed thorough training in psychology in order that they might deal with people who would never go to a medical psychologist He appealed for the thousands who needed this kind of help

Miss Graham Ikin spoke of her work on coöperation between doctors and clergy. Efforts were being made to get a common point of view that had really been digested by both professions. A memorandum setting forth a scheme of training had been achieved. The chief criticism of the standard suggested for clerical specialists was that it was much higher than that exacted from the medical psychotherapist! There was probably a very real delimitation between the spheres of the clerical and medical psychotherapist, and its recognition might greatly conduce to national mental health At present the two were overlapping very much, and many doctors felt they were struggling with problems with which they could not cope

Dr Ethel Dukes said that play therapists were a very useful adjunct to any child-guidance clinic and made it possible to deal with a much larger number of children. They were required to have had teaching experience, to take a psychological diploma and a personal analysis, and to do three years' training They did most valuable work, in conjunction with doctors who saw to the physical aspects of the case

Mrs Scott Maxwell emphasised the long and careful training she and other lay analysts had had, and said that almost all her cases came to her through doctors, and hardly ever had any physical symptoms

Dr Doris Odlum stressed the importance of diagnosis and the risk that arose if the lay worker were not in close contact with a doctor. It was fatally easy to assume neurosis and overlook organic conditions She believed that lay psychotherapy was invaluable and inevitable, but there would be grave danger to the public if the medical profession did not stand behind it The medical psychotherapist without mental hospital experience was not competent to diagnose incipient psychosis

Dr E F Skinner mentioned the need for more fundamental agreement, and for a combined curriculum, so that doctors and ministers spoke the same language There were many churches, but only one medicine

Dr F. J. Esher spoke of the importance of teaching simple mental hygiene to the general public, including teachers and doctors A number of simple and understandable conditions in a child's home led to trouble

The Chairman said the discussion had shown that there was a very wide field where the importance of lay psychotherapy was unquestioned, and the problem of guarantees only arose in a very small area of the total field. Dr Gordon's arguments were sound in so far as they dealt with the cure of disease, but the wider realm of educational psychotherapy did not touch mental disease

Dr Gordon, in reply, said that if there were in fact "only one medicine" that medicine was entirely ignorant of psychology.

Outpatient Mental-treatment Clinics

On Friday morning the conference discussed the psychological factor in sexual delinquency In the afternoon the subject was the organisation and staffing of outpatient clinics

Sir Laurence Brock took the chair, and Dr W. J T. Kimber described the clinic associated with the Hill End Mental Hospital He pointed out that it was essential to treat the whole individual and that therefore mental healing must be carried out in a place where facilities were available for the coincident treatment of bodily ailments At Hill End there was no absolute separation between the hospital with its inpatient staff, and the clinic with its outpatient staff which also engaged in private practice. The psychiatric social workers worked without discrimination for both Provision for vocational guidance had been found essential, and there was a child-guidance department. It was an advantage to have children in the same clinic as adults, because treatment of parents was often necessary and also because the air of informality given by a children's department greatly helped shy and sensitive adults The most important point in clinic procedure was the initial case conference at which the whole of the facts were assembled and the regime laid down by a team of workers From the beginning, Hill End had attempted to avoid the pitfall of "treating a patient as though he were a bank," as Lord Horder had put it. One of the senior members of staff was personally responsible for each patient throughout his treatment It was essential that the environment of the clinic should not be makeshift, dull and dreary, or cold and forbidding A patient should feel on his arrival that he had been expected All patients were seen by appointment There was a close liaison with the neighbouring general hospital, where patients were seen weekly without an appointment and a diagnostic service was given

Dr ODLUM said that outpatient mental clinics had now been working for about ten years and that it was possible to draw conclusions as to the best methods of organising them She agreed with Dr Kimber that ideally they should be linked up with both the mental and the general hospital, and that the medical staff should be drawn both from the mental hospital staff and from doctors of both sexes in private practice It was essential to hold a session at least once a week, and the best arrangement was two or three times a week Continuity of personnel was important The staff must have special training in psychotherapeutic methods The most suitable locale for the clinic seemed to be the general hospital, where patients could easily be referred to other departments for investigation, and where there was no popular reluctance to be associated with "mental" cases A whole time specially trained social worker was absolutely necessary Such a clinic was needed in every area of the country, and ideally a doctor should not see more than 5 old patients and 3 new ones in a session of three hours Obviously the local authority should take some financial part in the clinic

Miss ELIZABETH MARTLAND, J P, sympathised with the average councillor who had to apply his harassed and lamentably overworked mind and the dwindling and lamentably insufficient rate payers money to the formidable claims of many public health services She was puzzled as to the best name for these clinics, in her own town the mental clinic was referred to as the "neuro' She would like to see many more established for they were doing valuable work She thought that many patients were afraid to go anywhere near a mental hospital and some shrank from the general hospital for fear of gruesome physical contacts She thought that the solution was provided by a scheme of special hospitals for psychoneurotic and borderline cases with outpatient clinics attached It was useless if the clinic were open only one afternoon a week, evening sessions were also absolutely essential She pleaded for closer coöperation with the various and elaborate social, medical, and dental services throughout the country, and for greater uniformity of service She wished that more local authorities could institute early treatment centres and a coördinating mental health committee In the more backward and distressed areas the situation was deplorable, not only cruel and inefficient but extremely wasteful Doctors and social workers must have some special training for the work.

Dr HELEN BOYLE thought a harmless name for the clinic was most important, nervous' was the best word at the present time An outpatient clinic was incomplete and inefficient without beds, entirely separated from mental hospital beds The local authority should be allowed to pay for their patients wherever they chose to send them Any new buildings should be of the temporary hut type, so little was known of what would be wanted in the future The general hospital was the best locale for the clinic

Dr G DE M RUDOLF pleaded the cause of those who were really terrified of anything "mental" The attitude was by no means rare For them there should be a clinic quite separate, in staff and locality, from the mental hospital By all means let it work in coöperation with the mental hospital clinics

Dr F BACK said that the clinic in Sunderland had been running for 13 years and had always had three weekly sessions Recently three child guidance sessions had been added, held at the medical clinic of the education committee He thought "psychological clinic" was the best name He approved of appointments but also believed that the clinic should be always available without appointment

Dr SKINNER said that in Sheffield the clinic was officially known as the "psychological," unofficially as the "cuckoo" clinic, he thought "nervous clinic" was better He used his general beds for nerve cases An outpatient clinic ought to be attached to every general hospital and should have beds of its own It was impossible to deal adequately with the material presenting itself at these clinics, and the only solution was to have a paid staff, the local authority must step in here His medical clerks attended the taking of histories in the psychological clinic, but not the treatment sessions, patients occasionally objected to their presence

Mr P T P PUDDICOMBE pleaded for the more grammatical "nerve hospital" The work must eventually be part of the responsibility of the local health authority, and the staff should include mental hospital officers and suitable practitioners The nerve clinic should be part of the combined treatment centre, to which no stigma attached

Mrs PHEYSEY (chairman, Bristol Mental Hospital) spoke for the woman in the street, and voted for "nerve clinic", people thoroughly enjoyed having bad nerves Local authorities had to borrow money for their building and could not borrow for shacks Shack building was unhealthy building

Mr ROLAND SMITH (chairman, Hill End) thought "nerve clinic" was the right term With the taboo that existed on such things, finance committees were sometimes a little hesitant to foot the bill for mental health, the clinics were prophylactic and could never produce a rise in statistics or a return for money spent, he wished the board would publish figures of what other local authorities were doing —The CHAIRMAN promised that it would

Dr OCTAVIA LEWIN said that the mind could not be separated from the body "Nervous clinic was a good sensible name It was impossible to have an outpatient clinic without beds The work of the clinics would be lessened if the educational side of psychology were properly tackled

Dr A SPENCER PATERSON said that over fifty years ago professors of Greek and English had consulted over the new clinic in Edinburgh and decided to call it the "nerve hospital' In Baltimore the term 'psychiatric" was used, but the clinic was popularly known as "the bughouse' At the Middlesex Hospital the department was called "psychological medicine' The choice should be between "psychological' and "nerve'

Miss BARTON pointed out that the Institute of Child Psychology and the Institute of Medical

Psychology had both found it impossible to obtain charitable support while they had the word "psychology" in their title

Mental Hygiene and the Press

On Friday evening the chair was taken by Mr. W. F. Roch

Dr J R **Rees**, opening a discussion on the influence of the press on the health of the community, said that a real advance had been made lately by the prohibitions imposed on reporting in the divorce-courts and the children's courts. Many would wish that suicides could be treated with the same discretion Stories of suicide undoubtedly affected many other persons who were depressed There was not sufficient selectivity by the press in dealing with their stories The emphasis they gave was often wrong. Many papers would lose their circulation if the housing, economic, and social conditions of the country were better than they were at present, so that men and women had more scope for themselves and more chance of adventure The avoidance of truth and of reality were clearly unsound for mental development, and astrology was a phase of newspaper history of which the country had every reason to be particularly ashamed. Both the patent-medicine columns and the astrologer's notes aimed at the prostitution of such little intelligence as some of the readers possessed Wickham Steed, in a recent Penguin book, "The Press," referred to the trusteeship of the press for the health of the public mind Dr Rees believed that the responsibility of the press was perhaps greater even than that of the doctor, and professional standards should be established stricter than anything yet known The function of lay men and women was to support good and honest journalism whenever they could . to be critical of their favourite journals and especially of their advertising Demands and criticism must produce effect on newspapers Children might with profit be set to the lesson, or game, of studying different types of newspapers and making graphs of the space allotted to various topics, such as home and foreign affairs, literature, murders, and sport Many of them would probably become critical of the matter which the press offered the public and would be more discriminating readers in the future Young men and women of culture and education who were really well balanced should be encouraged to go into journalism and into newspaper management

Mr **Paul Winterton**, of the staff of the *News Chronicle*, criticised the medical profession for trying to conduct not only its private meetings but its whole business in camera, for shrouding its work in a jealous secrecy, and for using an unintelligible jargon A great responsibility rested upon medical men to use their wide knowledge in willing coöperation with the press. and to instruct the public on matters of health in general and mental health in particular. Medical etiquette appeared to prevent them from doing this To spread truth and knowledge through the press in a signed article was, if not actually infamous conduct, at any rate conduct to be frowned upon A specialist when rung up on the telephone for guidance was generally either shy or indignant. Mr. Winterton congratulated the National Council for Mental Hygiene on their press service, but added that every mental health organisation in the country ought to establish a bureau for supplying the press with articles and topical comment A first-class press department at the Board of Control would be of great service. and could in a few years entirely transform the public attitude to mental health.

Dr. N. G. **Horner**, editor of the *British Medical Journal*, paid tribute to the National Council for its pioneer work in fostering the ideal of mental health The medical press, he said, had no cause to be ashamed of the part it had played in promoting mental hygiene The better class of doctors would coöperate more willingly if they were asked to interpret matters of importance rather than trivialities The rule enjoining anonymity was not so foolish or perverse as Mr. Winterton appeared to think. It was aimed against self-advertisement, especially by doctors in active practice There were self-styled specialists, mostly hungry, pushing men, who would give much to have their names and photographs in all the newspapers as purveyors of information and opinions The rule of anonymity kept those bounders within bounds, and meant that Dr. Donald Duck did less public quacking. The real experts would be more helpful and obliging if newspaper men were a little more discriminating. It must be rather vexing to a doctor to be interrupted in a difficult case, or pulled back from his bedroom at the end of a hard day, when he found that the telephone call asked him to comment on a report received from a Paris agency that malaria could now be cured by a new drug called G P.I.

The body known as P E P, Political and Economic Planning, in a descriptive and critical survey of the press, had declared that its chief faults were triviality, exploitation of crime and sex, sensationalism, over-simplification, over-emphasis on the personal story to gratify a mere taste for gossip, and playing down to subconscious instincts It summed up the attitude of the popular press in an epigram . "Bad news is often good news, in the sense that it makes good copy." The criticism had, however, extended to the tastes of newspaper readers, large numbers of whom would, it was said, support a newspaper which was considerably more sensational, scandalous, and irresponsible than anything which the scruples of journalists, advertisers, and proprietors, and the restraints of law, would now allow to appear. The British public rewarded with high profits the owners of a newspaper which kept as closely as possible to the unprintable If that was the mind of the British public, asked Dr. Horner, could the press be blamed ? The medical journals contained a good deal of matter which could be profitably passed on to the public, and the profession as a whole would like to coöperate. Was it asking too much of the press to take a little more serious interest in articles in the *Lancet* and *British Medical Journal* than in the man with three thumbs or the baby which weighed as much as its mother ?

Dr. **Murdo Mackenzie** pointed out an important difference between the facts of the mind and those of the body they were not accessible to the special senses He had perceived behind Dr Rees's speech the suggestion that if the press took a constructive point of view in mental hygiene they would have to take the lead in giving an accurate description to the things which were unseen as well as the things which were seen Perhaps there had been a doubt in Mr. Winterton's mind. whether unseen things could ever receive the same form of public presentation It was necessary to inquire whether any other means existed by which the press could give force to a constructive point of view in mental hygiene The facts of science had always been difficult to the press, but they had come into public presentation in due course because their inevitability had been recognised by common consent This inevitability had resulted first of all from the conversion of a minority, and that minority must be well informed To be well informed about the facts of mental hygiene was no easy matter but needed pure unadulterated slogging The informed minority must then, from a concise clarity of mind, state the facts to the press in a convincing manner If the minority worked hard enough the public mind would inevitably demand this knowledge and the press must succumb to the demand

Mr S H **Halford** (Middlesex county council) quoted the opinion of a responsible newspaper manager that a paper which was conducted by ordinary sensible and decent standards would sell about 35,000 copies a day Before the Education Act, 1870, people had learnt to read because they wanted to improve their minds, since reading had become compulsory the intellectual standards of the reading public had become debased and a vast market had been introduced for unintelligent literature Control of the press would, however, be too dearly bought at the price of liberty

Dr **Rees**, in reply said he proposed that control of the press should be exercised by journalists themselves and not by the executive —Mr **Winterton** declared that the medical profession was not yet pulling its weight in the councils of the nation, however valuable might be its work He reminded doctors that it had been left to a layman to tell the public the marvellous and extremely important story of the malarial treatment of general paralysis

The conference also discussed education and the emotional needs of the child, problems of adolescent instability and juvenile delinquency and the place of the social worker in mental health

MEDICINE AND THE LAW

Bogus Doctor

Last week at the Middlesex sessions two men who had posed as solicitors were sentenced to 12 and 9 months' imprisonment respectively On the same day at the Old Bailey a dentist who had posed as a doctor received 6 months in the second division One must resist the temptation to assume that a bogus solicitor is more hateful to the law than a bogus doctor

The dentist was Henry Bernard Langdon aged 53, with an address at Walthamstow According to the police he was married in 1907 and for a time kept a second hand clothes shop, he and his wife afterwards "entered dentistry" at Walthamstow, in 1923 he bought his wife out of the business which had earned £2000 a year, he first came to the notice of the police in 1936 when he "attempted to engineer a marriage between an Italian woman and a man who was found to be a deserter from the army" A detective sergeant told the court last week that for the past year or two Langdon had been posing as a doctor in the West End of London, chiefly among members of the theatrical profession The prosecution stated that Langdon was introduced to a Mr and Mrs X as "Dr" Langdon and made no comment Mrs X was not in good health Langdon said he would examine her He told her to undress and, in her husband's presence, he made his examination He was paid for the treatment he prescribed The charge against him was one of obtaining money by false pretences, there was also a charge of improperly assaulting Mrs X In the absence of a full report of the case it is assumed that the latter charge related to the technical assault of medically examining a patient who had given her consent in consequence of a fraud—namely, the false pretence made by Langdon that he was a qualified medical practitioner

Whatever were the facts in Langdon's case the general legal position is that consent is usually a defence to a charge of assault but that fraud vitiates the consent There are well known cases which illustrate this principle *R v Rosinski* (1824) showed that a medical man (or a person pretending to be a medical man) commits an assault if he strips a woman naked on the pretence that he is diagnosing her illness In R v Case (1850) the patient's consent was vitiated by the fraud when a man induced a girl to have connexion with him on the pretence that he was treating her medically

"Without the Patient's Consent"

It is perhaps unnecessary to repeat the warnings in the textbooks as to the illegality of medical examination under the supposed authority of a magistrate without the patient's consent Judges magistrates, and police have no power to order compulsory examination In Weir v Hodgson (*Lancet*, 1869, 1, 752) £200 damages were awarded against a surgeon and a police inspector who insisted on examining two women in order to find out whether either of them had been recently delivered of a child Two years later there was a distressing case (*Lancet*, 1871, 2, 333, 414, 477) where a woman was suspected of infanticide Two doctors attempted to examine her under the authority of a coroner's order; she committed suicide rather than submit to the examination The coroner had no power to make any such order In Agnew v Jobson (1877) a prisoner who was charged with concealment of birth was examined without her consent by a doctor on a magistrate's order She recovered damages against the doctor, the police, and the magistrate

By way of exception there used to be one single occasion on which a woman could apparently be examined against her will—namely, when she had been sentenced to death and had asserted herself to be pregnant The next step was the empanelling of a jury of matrons *de ventre inspiciendo*, to decide whether her assertion was true or not In 1931 this ancient relic of the criminal law was abolished by the Sentence of Death (Expectant Mothers) Act Thereafter, if the same situation arose the question of pregnancy was left to be decided by an ordinary jury like any other question of fact The jurors were to give their verdict "on such evidence as may be laid before them either on the part of the woman or on the part of the Crown," and they were to find her not pregnant unless the contrary were affirmatively proved

Consent to Dental Extraction

When there is no element of fraud there may be a dispute over the fact of consent Recently in the Macclesfield county court a patient complained that she had consented to the removal of only four teeth whereas the dentist had extracted sixteen There was a sharp conflict of evidence the dentist insisting that he had advised the extraction of all the teeth in view of their decayed state and the presence of chronic pyorrhœa that the patient had fully understood and consented, and that the services of an anæsthetist would not have been necessary for the extraction of only four The patient her husband, and her mother had given evidence to the contrary The county court judge came to the conclusion that the parties had arranged for only four teeth to be taken out He thought the explanation of what occurred was that, when the dentist had taken out the four teeth, he found they were in a bad way and then, *acting on the spur of the moment*, had decided to make a clean sweep. As a matter of law the dentist was not entitled to do this. His instructions were to extract four and there were no circumstances which justified him in exceeding that authority. The judge awarded the patient £12 12*s*. damages for the shock she had suffered and gave her judgment with costs.

It probably does not occur to a dentist to obtain a consent in writing for the extractions he is about to make. In more serious surgical operations there is no safety in oral instructions.

Fee for Emergency Treatment

By section 16 of the Road Traffic Act of 1934 Parliament gave medical practitioners some kind of security that they would be paid for services rendered in emergency to the victims of traffic accidents. The amount of the fee was made part of the liability against which the motorist is compelled to insure. But the wording of the section specifies that the doctor must have rendered his aid "immediately" after the accident. A recent case in the West London county court shows that an interval of half an hour after the injury may prevent the doctor from claiming a fee from the motorist. In the West London case a woman was loading goods into a van near the Strand when a taxicabman, backing his cab, pinned her against the van. Refusing to go to hospital, she was driven to her home in Fulham where she arrived about 35 minutes after the accident. Dr Evelyn Nixon of Lillie Road, Fulham, and Harley Street, happened to be passing and was able to render first aid; she gave an injection, the patient being in a state of collapse. When Dr. Nixon applied for payment of the fee of 12*s* 6*d* by the cabman, the latter contended that the medical aid was not given "immediately." This view was upheld by the registrar who decided against Dr. Nixon with costs. The doctor is free to sue the patient in the ordinary way, and presumably the patient can recover the amount from the negligent motorist. The case shows the limitations of the statutory claim under section 16.

FIRST-AID POSTS AND HOSPITALS IN AIR ATTACK

The Ministry of Health has now decided that in drawing up their schemes for air-raid precautions local authorities should provide for the attendance of at least one doctor in each first-aid post, and if possible a trained nurse as well. The doctor's function will be to intercept the walking wounded and those unwounded but gas-contaminated cases who are otherwise likely to gravitate to the nearest hospitals and hamper their proper work of dealing with the severely injured. The Ministry suggests that a first-aid post should be attached or very close to every hospital that is to be used for the initial reception of casualties, and that the outpatient department itself could often be used for the purpose. It might then be convenient for the medical and nursing personnel of the post to be drawn from the hospital staff. Some of the smaller hospitals and clinics, which would be unsuitable for the reception of casualties, could also be transformed into first-aid posts. In some places buildings other than medical will have to be selected as posts and in the less populous areas the fixed posts might usefully be supplemented by mobile units, consisting of converted motor vans or single-decker buses.

In a booklet[1] issued by the Ministry of Health this week hospital authorities are urged to proceed at once with measures to protect their buildings against air attack, especially if they are situated in densely populated areas or near likely targets, and it is stated that the Government are prepared to contribute towards the cost. According to this booklet it is not practicable to protect hospital buildings from direct hits by high-explosive bombs or from the blast effect of such bombs falling within 50 feet, but some protection against blast and splinters can be given on the ground floor by sandbagging walls, windows, and doors. In many hospitals the operating-theatres are especially vulnerable owing to their wide expanse of glass, and where adequate protection by sandbags or brickwork is impossible arrangements should be made for alternative operating-rooms in less exposed parts of the building. For dealing with gas cases provision must be made for outside shelters where contaminated clothing can be removed before admission and for baths for cleansing contaminated areas of skin.

In constructing new hospitals the booklet urges that the risk of air attack should be considered in the selection of sites. There is little to choose between a multi-storied compact building that will offer a small target and a single-storied building which would be less susceptible to direct hits or fire. Buildings should be steel-framed with reinforced concrete roofs at least five inches thick, and enclosed courts, high chimneys, and roof lights should be avoided as far as possible. Where there is to be a basement it should be made suitable for an air-raid shelter, with a roof strong enough to withstand the fall of debris if the superstructure collapses.

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[1] Structural and other Precautions against Air Raid Risks in Hospitals. H M Stationery Office. Pp 12. 3*d*.

THE LANCET 100 YEARS AGO

January 19, 1839, *p.* 617.

From a leading article

"It is a pleasant thing to see brethren dwelling together in unity: it is like the oil upon Aaron's *beard."* Without pledging ourselves to the literal accuracy of the quotation, or to the justness of this simile, we undertake to say that it is very pleasant to see the medical men of a neighbourhood living together amicably, cultivating science peacefully, and labouring zealously for the public good. If we have sometimes found ourselves in the midst of war, and sometimes led the van, it is not because we have ever been insensible to the charms of the smooth, easy, oily state of things, so congenial to a learned profession, but because general practitioners and the great body of our brethren have had presented to them, ever since *this Journal* existed, the alternative *either of* agitation, or of tranquillity with dishonour, degradation, and exclusion from all offices of distinction and profit in the medical corporations. Under such circumstances war was indispensable. . . .

The Lancet Index and Title-page to Vol. II, 1938, which was completed with the issue of Dec. 31, is now in preparation. A copy will be sent gratis to subscribers on receipt of a post card addressed to the Manager of The Lancet, 7, Adam Street, Adelphi, W C 2. Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now.

SCOTLAND

(FROM OUR OWN CORRESPONDENTS)

ABERDEEN UNIVERSITY

THE opening of term at Aberdeen University brought the inaugural addresses of two new professors, Dr R D Lockhart, professor of anatomy, and Dr R S Aitken, professor of medicine Speaking of the action of muscles, Prof Lockhart described an investigation in which he and a colleague proved that many fibres run the whole length of a muscle often as much as 30 cm He also dealt with the difference between normal and controlled movement illustrating his arguments with a living model and with numerous films He showed radiograms of the feet of Pavlova and other ballerinas, and footprints of the shoeless Australian aborigines, whose feet, far from being splayed and ungainly, were as comely as those of shod peoples

Outlining what he believed to be the function of a department of medicine in a university, Prof Aitken said it presented itself under the headings of practice, teaching and research He spoke of the still largely empirical nature of practice and of the need for early practical experience Tolerance sympathy, and determination were qualities needed to make the doctor patient relationship a fruitful one The present system of training doctors was to load them up with knowledge, there should be a drastic selection of what was offered to the student, determined by the needs of medicine and surgery Teachers might easily be misled into thinking that their best student was the one who could avidly soak up facts and later squeeze himself on to an examination paper, and they might even adapt their teaching to his sponge like propensities Every student of a university should learn to use a library and to read its books and journals critically Bedside thinking should also be critical, and it was important that where laboratory methods could fully establish a diagnosis they should be undertaken by the student so that he would learn the association of clinical and laboratory findings from experience and not blindly from his teacher In the wards there should be an atmosphere of friendly coöperation between doctors, nurses, and students A department of a university which attempts no research in its own field, Prof Aitken said, did not deserve its status and should belong to a technical school Research was a mental discipline which helped clear and critical thinking, and this alone justified the policy of encouraging young graduates to spend a year or two in the laboratory Contact between teacher and research worker should be close, for there was much to be gained on both sides

EDINBURGH ROYAL INFIRMARY

The annual report of the managers shows that the work of the Royal Infirmary has increased steadily during the past year, inpatients numbering 22,000 and new outpatients nearly 76 000 The popularity of the hospital is proving an embarrassment but the managers hope that a scheme of cooperation with the municipal hospitals will relieve the situation The hospital still has no paying beds except in one small department and the financial position is causing the managers some anxiety Last year the ordinary income was nearly £141 000 but this left a financial deficit of £71 000 part of which was paid by free legacies and special receipts amounting to £56 000 It is the first time for many years that the accounts have shown a deficit after making use of free legacies, and the managers point out that the extra commitments incurred in taking over the management of the new maternity hospital which is to be opened in March are likely to increase the burden on the institution The new nurses' home, which provides accommodation for 300 nurses, will soon be finished The total cost of the extension scheme exceeds £500,000, of which £400,000 has been raised The chairman suggested at a meeting last week that the new maternity hospital might well be given a grant from state funds

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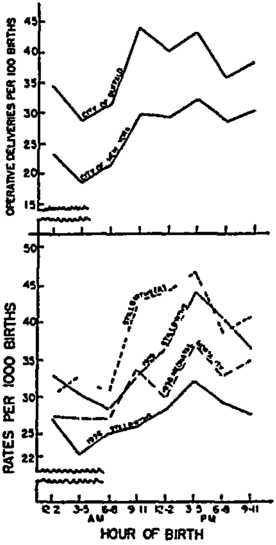
UNITED STATES OF AMERICA

(FROM OUR OWN CORRESPONDENTS)

THE HOURLY DISTRIBUTION OF STILLBIRTHS AND NEONATAL DEATHS

SEVEN years ago it was noticed by de Porte[1] that the stillbirth rate reaches a peak between three and six in the afternoon American obstetricians have offered various explanations of this phenomenon, of which the two most notable are, first, that since most labours begin at night most prolonged labours will end in the afternoon, and, secondly, that since doctors are busy in the afternoon they may be more readily disposed to operative interference then Jacob Yerushalmy, until recently statistician in the division of maternity of the New York state health department, has now confirmed de Porte's original observation and has added some observations on the distribution in time of operative deliveries The latter shows two peaks one around 11 A M when hospital operating-rooms are normally busy and one corresponding to the peak of stillbirths in the afternoon The relationship of the trends is shown in the accompanying figure The author is careful to state that correlation does not necessarily imply causation



The curve of stillbirths (A) is drawn from figures quoted in Principles of Medical Statistics by A Bradford Hill p 64

TRAINING HEALTH ADMINISTRATORS

Yale University has instituted what is probably the first course in this country to prepare health administrators for the task of supervising the distribution of medical care The title of the course is "Public Health Problems Related to Tax-Supported Medical Care." There will be a symposium of lectures on "World Background" by a distinguished German exile, Dr. Franz Goldmann; "The American Scene," by the professor of public health, Dr. C-E. A. Winslow, and Prof. Ira Hiscock, and "Practical Experience in the United States," by Dr H Jackson Davis, chief medical officer of the New York state department of social welfare These will be followed by more specific discussions of social service problems and the relations of hospitals to the medical profession, voluntary agencies, and the health department.

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[1] de Porte J V *Amer J Obst Gynec* 1932, 23 31

FRESH WORK ON PELLAGRA AND NICOTINIC ACID

Working in the University of Cincinnati Tom D. Spies, R W Vilter, and S P. Vilter have shown that the blood of normal persons on well-balanced diets supports the growth of *B. influenzæ* to a much greater extent than does the blood of pellagrins who are on deficient diets After the administration of adequate amounts of nicotinic acid the growth-promoting activity of the blood of the pellagrins is increased. Cozymase (or co-ferment) is also increased in the blood of these patients after giving nicotinic acid, and the investigators think that the therapeutic effect of nicotinic acid in pellagra may depend on the synthesis of nicotinic acid nucleotide and finally codehydrogenase in the body Since they have found that a number of other chemical substances are also beneficial to certain pellagrins in relapse, it may be that the same general biochemical system or systems are involved in these various deficiencies in water-soluble vitamins

That these observations are of general importance is indicated by the fact that the blood from patients with severe diabetic acidosis also supports the growth of *B influenzæ* much less than does the blood of normal individuals or the blood of the same diabetic when regulated or given large doses of nicotinic acid The addition of codehydrogenase to the deficient blood, or to autoclaved media without blood, makes it support luxuriant growth of the influenza bacillus, although nicotinic acid amide shows no such growth stimulation.

PARIS

(FROM OUR OWN CORRESPONDENT)

EXPANSION OF THE PASTEUR INSTITUTE

IN 1884 Louis Pasteur started a laboratory in Garches, a suburb of Paris, and it was here that diphtheria antitoxin was prepared for the first time The Garches institute was somewhat put into the shade by the new one which came to be known as the Pasteur Institute of Paris, and it might have been relegated to unenterprising obscurity but for Gaston Ramon who during the past fifteen years has made its name famous by his investigations of diphtheria and tetanus As his work has grown the original buildings in Garches have become too small and new laboratories have had to be built for the production of anatoxins (toxoids), for the study of antigens and antibodies, and for testing recent discoveries These new laboratories were formally opened on Dec 22 last by the minister of public health who took the occasion to decorate Ramon with the collar of a commander of the Legion of Honour.

In a brief address Prof. Ramon traced the history of the Garches institute since 1884 From the study of rabies its staff had passed to that of diphtheria and then to that of tetanus, and the preparation of anti-diphtheria and anti-tetanus sera had assumed large proportions He claimed on behalf of his anatoxin that it had reduced the diphtheria mortality by about three-quarters in ten years in Paris, where only 50 per cent. of the children were inoculated; it had reduced the mortality by more than nine-tenths in New York where 80 per cent of the children were inoculated; and it had practically stamped out diphtheria in Canada where almost every child is inoculated Turning to the anatoxin prophylaxis of tetanus, he said that the ten-year application of this system to army horses had rid the French cavalry of the disease. Compulsory inoculation against tetanus had been in force among the French troops since the law of Aug. 16, 1936, had become effective The simultaneous immunisation of the army against diphtheria, tetanus, and typhoid fever had caused no inconveniences marring the successes achieved. Prof. Ramon added that the new processes devised at Garches had yielded, in a quarter of the time formerly required, antitoxic sera from five to ten times more active than before

INSTITUTIONAL CARE OF THE INSANE FOREIGNER

Every time an insane foreigner shoots and kills a sane Frenchman there is an outcry in the press over the abuse of French hospitality. This easily comprehensible reaction has lately found expression in the request of a French senator to the minister of public health for information as to the nationality and the number of foreign patients resident in French mental hospitals In his official reply, the minister puts the number at 4388. More than a quarter of them are Italians (1116) The Poles come a good second with 982, and the Russians third with 546 Spaniards, Belgians, Turks, Germans, and Czechoslovaks are each represented by three-figure numbers The British come comparatively low in the list with 64, and Korea, Denmark, and Norway are at the bottom of the list with only one patient apiece.

A BADGE FOR THE MEDICAL MOTORIST

In 1929 the Association des Médecins Automobilistes de France came into being in response to the instinct which makes birds of a feather flock together. A specific objective of this new body was the devising of a distinctive badge, the carrying of which would enlighten and impress the onlooker. For some years now this badge has had an effective, if not yet quite official, recognition by the police Their attitude to it has been defined as one of *tolérance aimable* as regards circulation and parking. and the same spirit of friendly tolerance is often shown by other motorists to motoring doctors The badge has often proved helpful to doctors driving in thoroughfares in which political differences of opinion have generated casualties The same association helps its members over legal difficulties, insurances, taxation problems, and those purchases in connexion with which substantial reductions can be obtained by corporate bodies

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". . It is a striking thing that when attempts are made to extend health and education services they are held up 'because we cannot afford them,' but when plans are developed for the war of man against man, they are at once put into action and we are called upon to make great sacrifices to pay for them If these armaments are really needed I am prepared to meet their cost, but I maintain that the same attitude should be assumed in the war against Nature, and that when it is known that increased activity is essential for education and for health the cost must be faced just as much as it is claimed it must be for planes and battleships"—T. B. LAYTON, *Guy's Hosp. Gaz* Dec. 31, 1938, p. 532

THE AIR-RAID

A series of articles on medical organisation and surgical practice in air attack by
P H MITCHINER, C B E , T D , F R C S , *and* E M COWELL, D S O , T D , F R C S

III—GENERAL PRINCIPLES OF WOUND SURGERY AND ANÆSTHETICS

THE general principles of war-wound surgery differ considerably from those of ordinary civil practice, although they are somewhat comparable to those necessitated by the severe injuries met with in motor-car and industrial accidents This difference in principles is due mainly to infection of the wound caused both by the carrying in of shreds of clothing and surrounding dirt with the projectile and by the considerable disruption of tissue round the wound track Micro organisms are thus introduced into the damaged tissue, often isolated from the surrounding air, in conditions which favour their rapid growth The principle therefore to be observed in all war-wound surgery is the prompt and thorough excision of the entire wound track, together with the damaged surrounding tissue, and the primary suture of the resultant wound or delayed (secondary) suture if primary cannot be carried out without tension

Delay in transport caused by enemy action is likely to result in the wounds of many patients being already extensively infected before they come under the care of the surgeon, and the extent of the wound and the involvement or close proximity of important anatomical structures often render impossible complete excision of the wound track As a general rule excision, to be satisfactory, must be performed within twelve hours of the infliction of the wound, and earlier than this if possible After this period the chances of obtaining primary union after excision are extremely small, but in the case of superficial wounds it may be justifiable to perform this operation up to twenty-four hours, roughly approximating the surface of the resultant wound, when this can be done without tension and no obvious infection is present, and draining the incision for twenty-four hours In cases seen after twenty four hours, and in any case seen at an earlier period in which total excision is impossible, *débridement* of the wound must be undertaken This consists in free excision of crushed and damaged tissue and the provision of adequate drainage from the most dependent part of the wound

Débridement should always be carried out in the case of all extensive lacerated wounds in which coaptation of the surfaces after excision must of necessity entail tension and therefore should not be attempted Compound fractures should be examined, obviously loose and necrotic pieces of bone removed, and the limb put up on a skeleton splint with extension The delays so often seen in previous wars will probably not occur in the evacuation of most of the casualties in air raids in cities but there are bound to be delays owing to the blockage of streets by fallen buildings and to the necessity of rescuing the wounded from beneath the debris

TYPES OF WOUNDS

The following types of injury are to be expected from the action of high explosive and incendiary bombs, further gas may be used by enemy aircraft, and the surgeon at any clearing station may therefore have to contend with decontamination of injured persons before operating upon them, or in certain circumstances he must operate in a gas mask (this should be practised in peace time, for it is both exhausting and difficult)

(1) As a result of the blast of high explosive bombs many crush injuries and fractures, due mainly to falling masonry, are bound to be met with, and in many cases these will be immediately fatal or the victims will be past surgical aid by the time they have been rescued from under the fallen debris In the remaining cases severe mangling of limbs and compound and simple fractures will be the chief injuries

(2) Many wounds will be due to the explosion of bombs and the falling fragments of shrapnel and shell casing from anti aircraft guns These fall into three main types —

(*a*) *Lacerated wounds* due either to bomb casing, in which event whole limbs are often avulsed and the patient eviscerated, so that they come very seldom under the care of the surgeon, or, more commonly, to fragments of shell cases and shrapnel, in which event they are usually of moderate severity

(*b*) *Penetrating wounds* usually due to high-velocity bullets fired from low-flying aircraft, a type of wound not likely to be much met with in London, where air defence against this form of aircraft is well organised and efficient

(*c*) *Contusions* due to small fragments of falling masonry and by patients injuring themselves in their haste to enter air raid shelters

(3) *Burns* due to incendiary bombs and the resulting fires, and to chemicals, such as mustard gas or cordite

Certain types of wounds deserve special consideration *Chest wounds* are usually caused by bomb fragments, hence extensive laceration of the chest wall combined with damage to the underlying viscera ensures a high mortality When the case is not immediately fatal, the wound and pleural cavity should be rapidly cleansed and the complete thickness of the parietes promptly closed, so as to allow the lungs to expand This operation, to be successful, will probably have to be performed at a dressing station If, after suture, the patient has a little dyspnœa or cyanosis, he is best left quiet in any position comfortable to him, and no attempt should be made to interfere with the wound for at least twenty four hours, after which it may be explored, if necessary, under intratracheal anæsthesia, and any fragments of shell may be removed after being localised by X rays When there is hæmorrhage from the great vessels, heart, or lungs, prompt operation to secure hæmostasis is essential, and the same procedure must be carried out in ingravescent pneumothorax to crush and ligate any patent bronchi

Abdominal wounds —All wounds of the abdominal parietes must be explored and, if there is any doubt about penetration of the abdominal cavity, laparotomy performed The common complications are internal hæmorrhage and perforation (often multiple) of the intestines Internal hæmorrhage must be arrested by ligation of the blood vessels and by suture excision, or plugging of damaged solid viscera and a systematic search made of the entire intestinal tract from the stomach to the colon in cases of suspected perforation Such search must be conducted foot by foot the intestine being returned immediately after examination while a lower portion is withdrawn through the laparotomy wound Small perforations can be invaginated, but extensive ones need excision and suture of the gut

Wounds of the head fall clinically into two types (1) those with a thin rapid pulse and extensive damage to the brain (here an early fatal result is to be expected); and (2) those with a slow full pulse which have a fair chance of recovery if operation is performed. It is important whenever possible to radiograph these cases before operating, so as to locate the missile and remove it at the operation with as little disturbance as possible to the brain tissue. Should pre-operative radiography be impossible, the surgeon should content himself with excising the edges of the wound, removing the damaged or depressed fragments of bone and any obviously necrotic brain tissue, but forbearing to search for the missile unless it comes readily to hand in the wound.

Wounds of the spine should be treated by the operator much on the lines of those of the brain Owing to damage of the spinal cord the subsequent mortality is considerable In all cases with retention of urine a suprapubic cystotomy should be performed, for it has been proved that patients who have not been catheterised do not develop ascending kidney infection *Wounds of the peripheral nerves* should be sutured, provided this can be done without tension when the wound is excised or cleaned, and the limb splinted to rest any muscles paralysed as a result of the nerve injury. *Wounds of the face and jaw* should be cleaned and passed as soon as possible to a plastic surgeon accustomed to dealing with this type of injury. Injured *blood-vessels* should, as a general rule, be divided and ligated above and below the site of injury and no attempt made to reconstruct their lumen. Such attempts are dangerous and likely to be followed by severe secondary hæmorrhage, should the wound become infected, and the ultimate results are unsatisfactory.

ROUTINE TREATMENT IN CLEARING HOSPITAL

The treatment of war wounds involves care of the patient from the time of infliction of the wound until the end-results have been attained, but in this article it is intended to deal mainly with the treatment which such cases should receive at the first hospital to which they are admitted, and from which they will probably have to be removed in a few days or earlier to make room for succeeding casualties from further air-raids.

It should be the aim to keep patients for 3–8 days at the clearing hospital; but this may be impossible owing to the number of casualties or the exigencies of transport, and the medical officer should select the cases to be evacuated prematurely, should such conditions arise These clearing hospitals will presumably be established in existing hospitals in the metropolis and will be organised with a number of surgical teams on the lines suggested in the first article of this series. All cases admitted must be treated when necessary for shock—briefly, this consists of giving fluids by mouth, or intravenously in severe cases, in which continuous blood-transfusion is of great value All wounded patients must receive a prophylactic injection of tetanus and gas-gangrene antitoxic serum. A combined injection is obtainable, and for the average case an injection containing 500 units of tetanus antitoxin, 400 units of *B. perfringens* antitoxin, and 400 units of *vibrion septique* antitoxin should be administered. When wounds are obviously fouled with road dirt or manure, four times this dose should be administered hypodermically, and this treatment and any other given must be recorded on the patient's medical card at the time of administration, so that, when he is transferred to another hospital, it may be known what treatment has been given

It cannot be too strongly impressed upon the young surgeon that every wound, however trivial, must be completely and thoroughly explored, for the vagaries of bullet tracks are many, and until such exploration has been carried out it is impossible to tell the exact course of the projectile, or what damage has been inflicted to subjacent viscera Hence in the case of minute wounds of the abdominal parietes laparotomy is often necessary and must always be performed if any doubt exists about penetration of the abdominal cavity In the case of lacerated wounds care must be exercised in the *débridement* lest important anatomical structures be damaged, and when such damage is found it must be repaired as far as possible by suture of nerves, ligation of vessels, and reduction and splinting of fractures, efficient drainage being provided in every case.

RADIOGRAPHY

If time and circumstances permit, radiography should be carried out as a routine in all cases of wounds by projectiles, to ascertain if fragments have been left behind and to locate their position. For this purpose there should be one or two X-ray units at each clearing hospital It will seldom be possible or advisable to carry out these X-ray examinations before performing the routine wound toilet, but every effort should be made to radiograph head wounds before operation. When small fragments are deeply embedded in the tissues and cause no apparent trouble, it is advisable to leave them in situ rather than to undertake extensive operation, the successful results of which are problematical, and usually negligible compared with the damage done to the body tissues All cases of both simple and open fractures should be radiographed after they have been splinted, and all cases of dubious fractures must be radiographed to establish a diagnosis, though this procedure may be impossible during rush periods or when it may only be possible to adjust splints, if necessary, before transferring these patients elsewhere. A proportion of X-ray units should be mobile

ANTISEPTICS

The application of antiseptics to the two ends of a penetrating wound cannot affect the track of the wound, and this is on the whole a good thing, for in our experience the use of antiseptics in sufficient strength to destroy micro-organisms has a most deleterious effect on the already damaged tissues As a general rule, therefore, antiseptics are strongly contra-indicated in wound surgery, for experience shows that antiseptic dressings cause more damage to the tissue cells than to the micro-organisms and thus encourage the spread of infection. The use of coloured antiseptics may be justifiable in following through the track of a projectile and can be used as a first-aid dressing when efficient cleansing is out of the question, but in such cases only a mild antiseptic should be used, such as a 1 per cent. aqueous solution of gentian violet or a 1 in 1000 solution of acriflavine or brilliant green, which are painless and non-irritant. The use of that popular and painful antiseptic 2·5 per cent iodine in spirit is mentioned only to be condemned.

ANÆSTHESIA

Anæsthesia will be necessary in the thorough excision and cleansing of all wounds, and for any patient suffering from loss of blood, shock, and low blood-pressure some form of stimulant anæsthetic is necessary. For this purpose a hypodermic injection of morphine gr. $\frac{1}{8}$–$\frac{1}{4}$, together with atropine sulphate gr 1/100, is a valuable premedication and allows the operation to be conducted under gas and oxygen anæsthesia Should deeper anæsthesia be required, as in laparotomy or thoracotomy, ether can be administered In no circumstances should spinal anæsthesia be used in such cases, for the resultant fall of blood pressure is very hard to combat and often fatal in already feeble patients Local anæsthesia is inadvisable, for the œdema consequent on the local infiltration in the area of the wound favours the growth of micro organisms and retards healing Nerve block may be possible, but it is difficult to foretell the exact area of operation, and the patients' mental condition is usually such that it is preferable that they should be unconscious of what is going on round them Chloroform (except in hot climates) must not be used to anæsthetise such patients if it can be avoided, for the risk of cardiac failure is very great As a general rule most of the wounded patients undergo anæsthesia extremely well and cause but little anxiety to the anæsthetist, provided he administers only gas and oxygen, supplemented if necessary with ether

The apparatus must be compact and simple, and portable if possible, such as the apparatus of Shipway, Boyle, or McKesson, or some modification of these A large reserve of cylinders of gas and of oxygen must be kept handy, but these should be stored outside the theatre and in such a place that they are unlikely to be exploded by a bomb falling in the vicinity A cylinder of oxygen and carbon dioxide should also be available and a few inhalations from this given to every patient as a routine at the termination of anæsthesia to reduce the incidence of lung complications and, by inducing deep breathing, to promote a more rapid recovery from the anæsthesia The anæsthetist's equipment must include gag and tongue clips, intratracheal catheters and Hewett's airways, as well as a ready sterilised hypodermic syringe and needles and ampoules of such restoratives as Coramine and strychnine It is a wise precaution to place a drop of castor oil in each eye before the patient leaves the theatre, for this greatly diminishes any risk of post anæsthetic conjunctivitis In many cases the patient will be returned to the ward to be nursed by V A D 's or orderlies, and it will be necessary to instruct these in turning the patient's head to one side and keeping the jaw forward so that the pharynx may be kept clear when the patient vomits

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GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations Each contributor is responsible for the section for a month, his name can be seen later in the half-yearly index

FROM A PHYSIOLOGIST IN AMERICA

III

Nov 23—Getting colder severe frosts at night, but a fortnight ago sat outside in the garden reading all day—and they complain of the weather The days are generally sunshiny and bracing, the cloudy days muggy and warm Last week it snowed

Dr S—— insisted on my accepting two tickets for Saturday's Yale *v* Harvard football match, so B—— and I caught the early train to Boston He is another Englishman and we passed the journey comparing notes and seemed to arrive quickly at our destination Boston station, like most I have seen, is magnificent and spotlessly clean It is important in this country to differentiate between the "station" and the "track" We had a cup of coffee, and descended into the subway where we were packed tight and trundled off to the Stadium We arrived a little late, but found our seats without difficulty—two numbers painted on a plank They certainly don't pander to the comfort of the spectators; it was the same at Yale Unlike the Yale Bowl, which is quite open all over, this horse shoe shaped structure is topped by a roof covering the upper half dozen or so rows of seats, and supported by pillars It is there only for architectural effect and certainly does look rather fine We were miles away from the pitch, but could see perfectly Yale never had a look-in, and suffered their first defeat of the season Rather bad luck, as it was the last and most important game Football stops now, probably owing to the imminence of winter, or perhaps because all the players get used up just about now A snowstorm came on and lasted all through the second half We buttoned up our coat collars and stuck it like Spartans, many of our companions drank whisky as well and became steadily more partisan (Even girls take their spirits "straight") The game, unlike the previous one was quite interesting and included a lot of open play The Harvard team were magnificent, making their 10 yards time after time, and their two scores were beautifully clean Yale relied too much on brute force, and came off very much second best They were lucky to escape with their 13–6 beating

The significance of university football is rather difficult for us to understand The seats are quite expensive, and the game may be played before anything up to 80,000 spectators—very much like our professional games Whether the money goes to the university, or the football club, or into some special fund I don't know, but I gather vaguely that it is almost essential for a university to have a first class team and that some people think it is not all for the best

* * *

It is a coincidence that on the same day as writing up a good football match I have also to report a proper tea We went to H——s this afternoon, where "pouring out" was done in the good old fashioned way All the departmental wives were there, the husbands dropping in by ones and twos We sat round the apartment and yelled at each other until it was time to leave happy but exhausted Marjorie was quite one of us and solemnly produced a little basket she had made at school and passed round pea nuts! As a matter of fact, I find that tea is not quite so unknown here as I thought Two or three people make it in their labs, and in a tremendous lounge in the medical school there is a daily function presided over by wives of prominent members of the teaching staff at which tea is dispensed from silver urns and "cookies" distributed The only un English features about this are first, that it is free, and secondly that it is free to all—staff, students, and nurses I believe it is unique and not a national custom

* * *

Nov 29—Last Wednesday I spent all morning cleaning out mouse cages, and in the afternoon we set out for New York where we were to spend Thanksgiving. It is curious how one comes to take these strange festivals for granted. I believe Thanksgiving has some connexion with harvest, but I have never troubled to consult any written authority. At all events, it is just as *important* as Christmas over here, and is the season of family reunion We united with the C——s in New York, who were among the thousands of people meeting our train. Fortunately they spotted us. Thursday was *actually* Thanksgiving Day, and was as nearly like our Christmas as to need no description

On Friday we explored a little of New York, adopting the time-honoured method of getting on top of a 'bus to begin with, just to loosen the muscles of our jaws and allow our eyes to swell gradually. Manhattan is neatly divided into rectangles, 11 or 12 "avenues" running from north to south, and about a couple of hundred "streets" running east and west, with Central Park in the middle Fifth Avenue runs approximately up the centre of the island, so we followed it from its business end in the south to its residential part overlooking the park . . . then round the north of the park and right across westwards to Riverside Drive, which flanks the Hudson River and is set with trees and gardens Its chief virtue is that it is not straight. On a clear day there must be a wonderful view across the wide river from its numerous apartment houses Here we found Grant's Tomb which for some reason I expected to be rather funny, but it was a most sedate and imposing edifice . . Made our way east again along rather dingy streets, lined with residences of varying attractiveness and numerous garbage bins (full), and came once more in sight of the park.

At this point we investigated a *fraction* of the Natural History Museum which made me feel that I had perhaps insufficiently cultivated the museum habit. We saw among other things a section of one of the Californian sequoia trees over 16 ft in diameter. It started growing about A D 500 We thought of stealing it for a dining-table, but decided it would not fit into our dining-room without removing at least three of the walls What interested us most was Beebe's original bathysphere—the hollow metal sphere with quartz windows in which he was lowered into the depths of the sea Personally, I should hate to be shut up in it for five minutes, with or without oxygen and soda-lime There is not enough room in it in which to stand upright, and of course no room for anything to sit on The manhole by which one enters has to be bolted tightly in position, and the whole is suspended by a slender wire cable

Outside, the buildings at the south end of the park looked fairly near, so we decided to walk. We walked for what seemed like miles, but the buildings receded before us Considering that they were as high as a range of small mountains it was not surprising, but it became very tiresome The fact of the matter was, it was too hot. in spite of being the end of November However, we were stimulated by finding Broadway at the corner of the park, cutting diagonally across the city in a most unconventional but refreshing fashion, and lunched at the nearest "Child's" We felt rather as though we were taking part in a film; everything was new, but vaguely familiar. There is no doubt about the value of the *cinema* in spreading civilisation.

Impelled by the urge to see as much as possible, we decided to mount a skyscraper. The R C A. (Radio Corporation of America) building is nowadays considered to be all that a skyscraper should be, though it is not the largest in the world, so with some trepidation we entered a door which would have made a nice frame for our house at home Inside it was still New York, only the sky being absent There were marble streets of shops, restaurants, exhibitions, telephones, and a large post office. It would be possible to live there without ever seeing the light of day A passage led to the biggest music hall in the world, and all that was lacking was a church and a cemetery. In view of the possibility of getting physically so near to Heaven, perhaps the former does not rank as a deficiency

We were rather surprised that we were allowed to go up in an elevator without a written introduction to the operator, but he accepted us as a matter of course and lightly flung us up to the 40th floor in less time than it takes to write it. After that, passengers began to leak out at every five or six floors At the 65th floor we were relieved of 40 cents each before being allowed to the 70th floor and so to the roof The view was not fifty miles in extent as it should have been, because the day was not quite clear, but we could see *most of Manhattan*. The slight haze lent a good deal to the picture of the great skyscrapers The highest in the world is the Empire State Building (1250 ft). Ours was the fifth highest in New York, being only 850 ft ; we could feel a slight shock as gusts of wind struck the building, and wondered how on earth they made the things stand up. Still, there they are, and they defeat description. People can say what they like about the ground floor of New York, with its noise and incongruities, but up here one feels that man has gone one better than nature (I can hear some of my friends snorting loudly about the top of the Chrysler building, but anyone standing on top of the world and peering at this ornate pinnacle has no soul.)

To gaze on these aspiring clusters of graceful, delicately poised needles, to think that they are really stupendous columns of masonry, reaching proudly, albeit a little wistfully, into the sky, is to uncover for a moment the core of the American character What homesick emigrant could fail to take heart at the sight of this man-made miracle? "Be of good cheer, be strong, and triumph!" it shouts. As a child bursts into activity on being released from school just to show itself that it is really free, so an enthusiastic and unfettered people spontaneously *flings its mighty monuments to the sky*.

Before we came to earth the setting sun broke through the clouds, and a beam of light lit up a stretch of the Hudson River which shone for a moment like gold We left the skyscrapers gradually fading into the heavy atmosphere and reappearing as cascades of light . . We descended at the rate of one floor in three-quarters of a second.

* * *

Coming out of the R C A. building we fell into the trap which always awaits the stranger in these rectangular cities We set off walking briskly eastward in the firm belief that we were travelling in precisely the opposite direction. By the time we had found out our mistake and retraced our steps, we were too late for the 4 o'clock performance at the Hayden Planetarium, and had to wait for three quarters of an hour. In the interval we explored the building and were somewhat awed at the large number of meteorites which were assembled in the circular corridor. One of them was a trifle of apparently solid iron weighing about 35 tons, and none was negligible from the mere pedestrian's point of view I heartily approve of the habit these things have of falling in unfrequented spots.

In the centre of the building on the first floor we found a room with the sun in the middle of the ceiling and the planets sweeping round it on little railroad tracks. Round the planets careered their little moons, looking rather fussy, but obviously enjoying making the parent body dizzy. One of them had a particularly annoying and disrespectful trick of chasing round faster than its planet was rotating. We had a wireless lecture on the planets, and then went up to the next floor into another large circular room covered by a great dome-shaped ceiling. In a pulpit at one side was the lecturer, an erudite gentleman who subsequently entertained us by describing the various ways in which the end of the world might come. If it is as terrifying as some of the acts he put on to illustrate his meaning, I shall be more than content to have ended first. The audience sat solemnly round an impressive looking apparatus in the centre of the floor, rather like a telescope with multiple tumours, and held hands while the lights slowly faded and the silhouette of New York round the edge of the roof gradually became indistinguishable. Then above us the night sky suddenly appeared, perfect in every detail and a cool breeze played round us. Whether this was stage management, autosuggestion, or merely a draught I don't know, but it was impossible to realise one was not outside on a clear starlight night.

The sky was a deep unfathomable blue and all the stars were there, even to the Milky Way. We didn't count them, but I'm sure even the smallest had not been overlooked (the apparatus is of German manufacture). As for imagining that the whole thing was just several slabs of concrete, nothing could have been more ridiculous. A luminous arrow played round the firmament several million light-years away, and obligingly indicated the stars and constellations referred to by the magician in the pulpit. I should have liked a sober demonstration of how the night sky changes during the year, but we were treated to much more sensational fare. First of all, we had a dizzy journey through space or time or both to a distance of several thousand centuries. Apparently the earth wobbles a bit on its axis, and while this is reassuring politically, it would be rather disconcerting to come back and find the Southern Cross definitely out of bounds and the Pole Star on strike. This is what happened, however, and North was definitely somewhere else. Next, by some obscure process, we seemed to be a long way from the sun which appeared as a small star; I suspect we were now disembodied spirits floating about in space. However, when the sun collided with Alpha Centaurus we were in at the death, for it was accompanied by a bang and a blinding flash of light. We were shown comets, meteors in full flight, and finally a demonstration of the moon charging at us with dire effects. The sky rocked, the wireless played very loudly, but the victory was ours for the moon broke up, with brilliant sunset effects, into a cloud of particles. The sky settled down, the music became soothing, and a luminous band stretched across the heavens from horizon to horizon. Saturn must have fun at night.

It was quite a relief to get outside into a shower of rain, and to travel down Eighth Avenue in a good honest 'bus. And so home.

PANEL AND CONTRACT PRACTICE

Relation between Doctor and Patient

IN the *National Insurance Gazette* of Jan 12 a correspondent gives particulars of a case that raises questions of special interest not only to insurance administrators but to the medical profession and the public. It appears that an insured person on the list of Dr A sustained an injury to his foot in November 1937, and was certified week by week as incapable of work by Dr A or by Dr A's son and partner, Dr B. The patient came to the surgery regularly for examination, and on April 13, 1938, he was examined by Dr B, who gave him an intermediate certificate of incapacity, and, in respect of the same examination, supplied the insurance company with which the patient's employers were insured against workmen's compensation risks a report to the effect that the patient was 'fit to resume his employment.' The patient applied to his approved society for assistance in pressing his claim for compensation and the society referred him to a specialist, who reported that he was not fit for work and needed manipulative and massage treatment. The case was brought by the society to the local insurance committee and, on appeal to the Minister of Health, who, it is stated, decided that there was no breach of the certification rules in respect of the certificate issued on April 13.

The case presents points of interest apart from any question of the legal obligations imposed upon insurance practitioners by their contracts with insurance committees. The doctor in his capacity as insurance practitioner, in which his obligations are defined by contract, gave his patient a certificate of incapacity for work, and in another capacity he gave an insurance company, a third party, a professional opinion to the contrary effect. It is often contended that in the British health insurance system, in which the insurance doctors are not state officers but private general practitioners giving part time service under contract with the insurance committees, the intimate and confidential relation of doctor and patient is preserved and interference of outside agencies is reduced to a minimum. The importance of this relation is emphasised in the B.M.A.'s plan for a General Medical Service for the Nation, in which it is stated that—

> "The relations between doctor and patient are so intimate that both doctor and patient rightly resent any outside interference. The patient is a sick person whose cure depends very largely on complete confidence in the doctor, and this confidence is built up to a great extent on psychological factors which are disturbed by the intrusion of outside agencies. The patient should be able to feel that the doctor is his doctor, acting whole-heartedly and independently on his behalf."

In this case there was a remarkable "intrusion of outside agencies" not into the doctor's insurance practice, where his duties are defined in his contract with a third party, but into his private practice, where he was acting in this matter, with perfect freedom. The case seems to furnish ammunition for the advocates of an insurance medical service of whole time officers remunerated by salary and debarred from accepting fees. Whatever the disadvantages of that kind of service may be it would at all events safeguard insurance doctors from any inducement to express contradictory professional opinions on the condition of a patient.

PUBLIC HEALTH

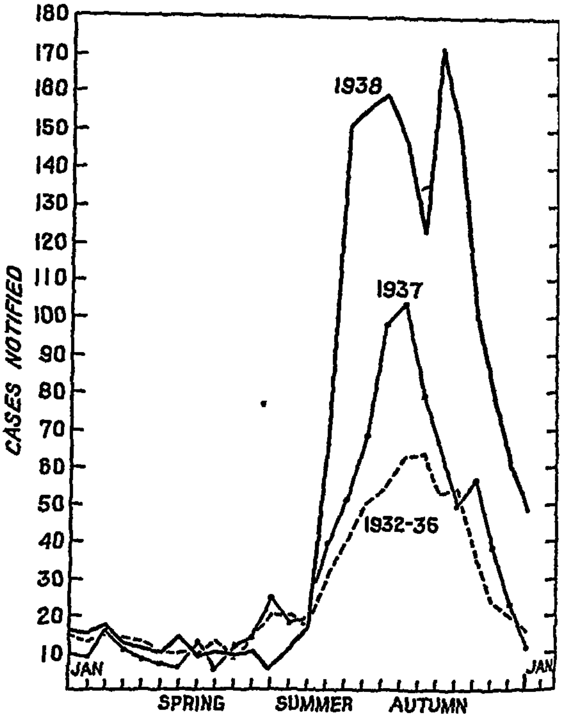
Pneumonia and Influenza

THE Registrar-General's weekly reports show that the number of deaths attributed to influenza in the great towns of England and Wales has increased considerably in the last few weeks. In the first half of December, 1938, the weekly total was some 20–30, in the week ending Dec. 24 it rose to 41, in the last week of the year to 89, and in the first week of 1939 to 144. At the same time notifications of primary and influenzal pneumonia have been approximately doubled, rising from 700–800 cases at the beginning of December to 1668 in the week ending Jan 7, 1939. An increased incidence of pneumonia is, however, normal at this time of year and the present level is roughly what might be expected on the basis of the experience of the last few years. In other words the position with regard to pneumonia has become much less favourable both as regards its absolute incidence and its position in relation to the expected figures, but is still not in excess of the latter. In London its incidence in relation to expectation remains low and a very large proportion of the deaths attributed to influenza are from the northern towns, especially Liverpool and adjacent areas. At the moment it is clear that there has been no dramatic change in notifications or deaths indicative of a real influenza epidemic, but the development of such cannot be ruled out. It is possible, on the other hand, that the present change is the result of an increased incidence of pneumonias following infections of a more indefinite nasopharyngeal type.

The Incidence of Poliomyelitis

One of the distinct features of the experience of acute poliomyelitis in England and Wales during the past year was the double peak in the curve of incidence. The rather sharp rise in notifications that occurred about the middle of July, and originated, it will be remembered, in Essex, led to a maximum figure of some 80 cases a week in the second and third weeks of August. There was then a small but distinct decline to 55–65 cases a week at the end of September and beginning of October. This, however, was followed by a secondary rise to a weekly incidence of over 80 cases in the second and third weeks of October. Since the beginning of November notifications have shown their normal seasonal decline, but as might be expected with an outbreak that became widespread the level has remained appreciably above that of recent years

In the accompanying table and diagram the fortnightly incidence is compared with the corresponding average figures for 1932–36 inclusive and for 1937. The conclusion previously reached (see *Lancet*, 1938, 2, 1083) still appears to be valid—namely, that judging by the course of events in 1926–27 it would be optimistic to hope for a speedy return to the usual low levels. Here and there about the country a new focus still seems to be cropping up, as at Wellington College in mid-December (*Lancet*, Jan 7, 1939, p. 51), and it is not unlikely that 1939 may also show an enhanced incidence of the disease, though on a lower scale. Actually during the first week of the new year (ending Jan. 7) 22 cases were notified compared with the half-dozen or so sporadic appearances normally observed at this time of year. In 1938 1485 cases of acute poliomyelitis and 97 of polio-encephalitis were recorded, giving a total of 1582 notifications, to be compared with 861 in 1937 and an annual average of 700 in 1932–36. The final record of 1938 is therefore about double the customar levels of recent years and also well above the highes figure *previously recorded—1159* cases of acut poliomyelitis and 138 cases of polio-encephalitis in th epidemic of 1926.



Number of notifications of poliomyelitis and polio encephalitis (combined) in fortnightly periods.

NUMBER OF NOTIFICATIONS OF POLIOMYELITIS AND POLIO-ENCEPHALITIS IN FORTNIGHTLY PERIODS

Fort-nightly period	Mean figure for 1932–36	1937	1938	Fort-nightly period	Mean figure for 1932–36	1937	1938
1	15	10	16	11	16	19	16
2	13	9	15	15	32	40	70
3	15	16	17	16	40	52	151
4	14	11	13	17	51	69	166
5	13	8	11	18	55	98	159
6	10	7	10	19	63	104	147
7	10	6	14	20	64	79	123
8	10	13	9	21	53	65	172
9	13	5	10	22	54	60	150
10	8	12	9	23	36	57	101
11	14	14	10	24	24	39	78
12	20	25	5	25	20	24	60
13	20	18	11	26	16	11	49

The Registrar-General's latest mortality retur (Medical Tables, 1937; see *Lancet*, Jan. 7, 1939, p 5 *show that in 1937 there were 152 deaths tabulated* "acute poliomyelitis," of which 94 were debited acute poliomyelitis itself and 58 to acute pol-encephalitis. These figures give the ratios of dea to notifications in that year as roughly 1 in 8 for *acute poliomyelitis and 1 in 2 for polio encephalitis*

London's Underground Water-supply

At one time an important proportion of London's water came from underground sources, and a memoir issued this week by the Department of Scientific and Industrial Research[1] describes over 1000 wells in the London area, of which half are now disused Of the 37 gallons per head that the Metropolitan Water Board distributes only half a gallon now comes from wells, and in addition some 4½ gal per head is drawn from private wells, mainly for industrial purposes

In the earliest times water was drawn from the Thames and from the brooks which flowed through the growing town into the river After 1236, water was supplied to the City in conduits from wells and springs outside the populated area, the first of these being a spring at Tyburn on the site of what is now known as Stratford Place, Oxford Street Additional supplies were later carried in conduits from Paddington, Hackney, and Hampstead In 1582 a pump worked by water wheels was erected on London Bridge and forced water from the Thames to the City The New River system was opened in 1613 At the beginning of the seventeenth century most of the streams through the town had become choked and partly buried, and only a few of the public wells, such as Holywell and Clerkenwell, remained About this time the first deep wells were opened, while in the nineteenth century supplies began to be taken from the Thames and its tributaries outside London These external surface sources now provide most of London's water

The early shallow wells were sunk in the sands and gravel which form terraces rising from the Thames Rain, or water draining from springs in the adjacent hills for example from the Bagshot sands at Hampstead and Highgate, filtered through these gravels until stopped by the impermeable London clay beneath, where it collected When the water from the gravels became polluted, wells were sunk through the London clay to what are called the Reading beds and Thanet sands, where the water was under considerable pressure and rose in truly artesian fashion In places the Reading and Thanet sands still contain water, but to the north they are now dry Today the chalk below the sands constitutes the most important water-bearing bed under London, but not all its water can be easily removed Chalk is like blotting paper it can absorb a quantity of moisture that cannot be released without great pressure or high temperature, neither of which can be applied in nature As in the sands above, the water level is falling, and this has rendered many of the shallower wells useless For example, wells close to the National Gallery used to supply the fountains of Trafalgar Square and many of the public buildings in Whitehall as well as the old Millbank Prison and the Houses of Parliament In 1844 the water level was 68 ft below the Ordnance Datum in 1911 it had fallen to 105 ft below, and soon afterwards the wells were abandoned

The general lowering of the water level below London is due to the fact that water is being extracted more rapidly than it can be replenished by the extremely slow flow that is possible under the existing subterranean conditions Pumping and the competition for water has become increasingly intense within the inner zone of London, and there are now twice as many wells in operation as in 1911 A considerable number of new wells have also been bored at the outcrop of the chalk and are removing large quantities of water which otherwise might travel towards the centre of London At the same time land drainage over the surface of the outcrop has been rendered more effective and the amount of water available for absorption in the underground strata reduced In addition, extensive building over the areas outside London, where the chalk comes to the surface, has diminished the catchment, thus extending outwards the distance through which the water absorbed must travel to reach the centre of the London basin Finally, the amount of rain contributed to the chalk and sands has seriously decreased during recent periods of drought Most of the factors which have reduced the level of the water are likely to continue, so that there seems little chance of the recovery of the water-levels Hopkinson calculated in 1891 that if the whole of the water in the chalk of the London basin were exhausted it would require 400 years' rainfall to fill it again

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED JAN 7, 1939

Notifications—The following cases of infectious disease were notified during the week Smallpox, 0 ; scarlet fever, 1394 , diphtheria, 1180 , enteric fever, 30 (23 "expected"), pneumonia (primary or influenzal), 1668 , puerperal pyrexia, 128 , cerebro-spinal fever 22 , acute poliomyelitis, 24 , encephalitis lethargica, 6 , dysentery, 27 , ophthalmia neonatorum, 72 No case of cholera, plague, or typhus fever was notified during the week

The number of cases in the Infectious Hospitals of the London County Council on Jan 13 was 3208, which included Scarlet fever 579 , diphtheria, 1088 (carriers, 45) measles 13 whooping-cough, 644 puerperal fever 8 mothers (plus 3 babies) encephalitis lethargica 297 poliomyelitis 5 At St Margaret s Hospital there were 27 babies (plus 9 mothers) with ophthalmia neonatorum

Deaths—In 126 great towns, including London, there was no death from smallpox, 1 (0) from enteric fever, 8 (0) from measles, 4 (0) from scarlet fever, 14 (6) from whooping-cough, 23 (2) from diphtheria, 43 (13) from diarrhœa and enteritis under two years, and 144 (3) from influenza The figures in parentheses are those for London itself

Blackpool reported the only death from typhoid Fatal cases of diphtheria were scattered over 18 great towns 3 at Liverpool Of the 144 deaths attributed to influenza 95 were reported from the northern area, Liverpool contributing 33, Birkenhead and Manchester each 6 Crosby Hull Southport, and Wallasey each 4

The number of stillbirths notified during the week was 204 (corresponding to a rate of 30 per 1000 total births), including 13 in London

"The oceanic island work, at least, must be done *soon or never* Islands comprise the most delicate and evanescent of environments for their native biotic communities as soon as civilized man and his satellites put in an appearance and proceed to upset the ancient balance The list of organisms that have become extinct within the historic period fairly bulges with the names of astonishing island birds from the dodo of Mauritius to the mamo of Hawaii All the peculiar land birds of Tristan da Cunha Island, in the South Atlantic, have become extirpated since the introduction of hogs and rats The remnant of the fauna of Tahiti is waging a rapidly losing struggle against domestic mammals alien hawks mynahs and weavers that have become established there and against the wild fire spread of lantana and other weeds that have already dispossessed much of the original vegetation The same story is being repeated elsewhere primitive conditions that may have flourished for a million years melt away when men of the dominant races whether white or yellow, arrive to break the spell"—R C MURPHY, *Science*, Dec 9 1938, p 533

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[1] The Water Supply of the County of London from Underground Sources H.M Stationery Office 6s

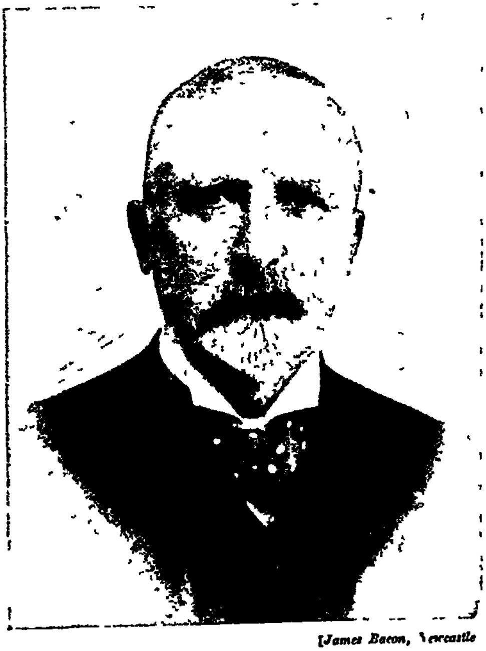
OBITUARY

JAMES RUTHERFORD MORISON

M B., LL D EDIN., D.C L. DURH , F R C S

THE death of Prof Rutherford Morison took place at Newcastle-on-Tyne on Jan 10, in his eighty-sixth year, and his loss will be widely mourned, at home and abroad, for he had been recognised as a leader in surgery for more than half a century

James Rutherford Morison was the son of Dr. John Morison, and was born in 1853 at Hutton Henry, near Castle Eden, co Durham This was then on the fringe of colliery districts and he grew up with a love of the country and an understanding of the work of the colliery doctor He studied medicine first in Birmingham and then in Edinburgh, where he qualified in 1874. His father's early death left him with several sisters and brothers to educate and he went straight into practice at Hartlepool, where he soon became physician to the hospital Even then his passion for surgery was so strong that he did more operating than the rest of the staff put together. He found time to take the primary F R C S, and to go to Vienna where he came under the spell of Billroth, then at the height of his fame After fifteen years of general practice he moved to Newcastle and in 1888 he was elected assistant surgeon to the Royal Infirmary, under W. C. Arnison who then held the chair of surgery From 1897 onwards he was full surgeon, until his retirement in 1913 on reaching the age-limit Morison was a popular teacher in the medical school long before he succeeded in 1910 to the chair of surgery, which he held until 1921. All these years he had an extensive surgical practice, ranging over the whole of the northern counties He was one of the earliest surgeons to limit himself to consulting work and to run a private hospital—he would not have it called a nursing-home Dene House and Gresham House, where he operated, were well-known names in those days In early life he walked or cycled to his consultations; for a time he used a motor-bicycle, which cost him a broken humerus Later on his big Sunbeam car, with Mat the chauffeur, was often seen carrying patients to hospital or nursing-home irrespective of time and distance



[James Bacon, Newcastle

Morison was a general surgeon in the widest sense and there were few fields that he did not essay with success In the late 'eighties he was doing gastrectomies and colectomies, and it was he who introduced the method of removing a growth from the lower colon by producing intussusception with an anal tube. In 1904 two of his patients made good recovery from partial cystectomies. But it was not only in the surgery of carcinoma that he was a pioneer. He was one of the first to advocate treating fractured patella by open operation and catgut suture, and he regularly operated for torn semilunar cartilage His radical removal of cancer of the breast was wide and complete His name, with that of Drummond, is associated with the operation of omentopexy for the radical cure of ascites, the Dutch surgeon Talma had also conceived the idea of a new collateral circulation, but it was Morison who had the first success Long before Crile described his method of clearing the neck Morison was doing elaborate dissections in all cases of malignant disease of the lip or mouth In his later days he became surgeon to the Sanderson Home for Crippled Children, where he organised a surgical service and did much orthopædic work He was consulting surgeon to the Dental Hospital, and after the war to the Pensions Hospital. For a time he acted as staff surgeon in the R N V.R In 1915 his services were sought for the war hospital founded in the Newcastle city asylum, and there he built up a modern surgical clinic Having been wedded to antiseptic surgery for so long, it was remarkable to find him then developing there a dry-sterile technique, amply justified by results. In the search for some sort of depot antiseptic he hit upon the idea of using the paste of bismuth, iodoform, and paraffin which, under the name of B.I.P.P , was widely used during the remainder of the war and since.

Morison was always a keen supporter of the British Medical Association; he was regular in his attendance at the surgical section of the annual meetings, and when the association met in Newcastle in 1921 he was president of the section He was also an ardent supporter of the old Northumberland and Durham Medical Society and for a long period edited its transactions. In the early 'nineties he induced these bodies to hold formal postgraduate classes, which were continued largely by his efforts until the obligation was accepted by the college of medicine. He was always a considerable writer, a selection of his earlier writings was collected in two large volumes (1881–1916) entitled "Surgical Contributions" His "Introduction to Surgery" (1910) was reissued more than once, with the assistance of his old pupil Prof C. M. Saint. Best of all perhaps was his "Abdominal and Pelvic Surgery for Practitioners" (1925) Though never fond of administrative or academic duties he did his share of committee work. For years he examined in the University of Durham and he was outside examiner in the Universities of Liverpool and Birmingham

Morison was a great chief All his assistants were agreed about this and loved him. But everyone who really knew him realised that he was a dictator, and as such he was revered more by the younger men than by colleagues He was more than a great teacher and pioneer surgeon, he was a maker of surgeons and many of his pupils are now occupying important surgical posts in various parts of the world In private life he was one of the most generous of men and many a poorer colleague had reason to remember his kindness of heart, it was characteristic of him that even his generosity was spontaneous but totally undisciplined In his most active years he was fond of shooting and fishing and after his retirement he took up golf though he never became adept The country always appealed to him After leaving Newcastle in 1924 he went to live at St Boswells on the Tweed, where he had a country home for many years But he could not be inactive and soon took up farming, trying out many of his own ideas It was there that on his eightieth birthday a group of his old house surgeons gathered round him to convey their congratulations and to present him with an easy chair To the end he was loyal to surgery, reading the surgical journals or the newer books and discussing them with his younger friends—often to lay down the surgical law in no uncertain terms His last years passed happily with the devoted care of a niece and until his final illness he enjoyed good health

He was twice married but for many years he had been a widower He is survived by a son of his first wife and three children by his second marriage, one of whom is Dr C R Morison of Harrogate

Prof Grey Turner, who was Morison's house surgeon and private assistant writes "One of my early recollections of him is when he was visiting the dissecting room and found me examining the roots of the lumbar plexus 'What huge foramina for such small nerves,' he remarked 'I wonder what the reason can be', and this inquiring habit of mind I came to associate with Morison throughout the whole of his life He insisted always on the study of principles and the importance of careful observation and diagnosis Asked what book he would recommend on treatment he replied that what was required was diagnosis, if only that could be made, the question of treatment was easy When I was house surgeon it was his habit to visit the hospital every day, including Sundays, reporting at the porter's lodge at 10 A M, and leaving about 1 P M, except on his three operating days when it was often 2 to 3 P M before he got away Sometimes he came down in the evening for emergencies but never after bedtime, for, as he said, he had had such a scunner of nightwork in Hartlepool that he never wanted to be disturbed again! For the same reason he could never be got to fill any engagement before 10 A M On his operating days he never stopped for lunch although he might drink two or more glasses of milk in the course of the day In the wards he made a point of seeing every case and took the keenest interest in their pathology He attended the post-mortem room not only for his own cases but whenever any examination was to be made At one time he saw and examined histological sections of all his tumour cases

"At Edinburgh he had dressed for Lister and was house surgeon to Patrick Heron Watson, whom he regarded as one of the finest operating surgeons he had ever seen During his early surgical life he was wedded to the antiseptic technique I remember him telling me that on one occasion when the spray broke down he covered the wound with a carbolic towel until a cab could return from his house with another spray, and he did not discard this part of the Listerian ritual until he had satisfied himself by a personal visit that Lister had done so himself He was always punctilious in the application of the technique in which he believed and in that lay probably the secret of his success At the same time he was always trying something new, although he would never travel to see any other surgeon at work for fear, as he once told me, of losing his individuality But he used to send me to other clinics to report on what I saw, and in later years, as a member of what is now the Moynihan Surgical Club, he paid regular visits to surgical centres, British and foreign

"But teaching was his great delight, he regarded it as a sacred duty and he never missed an opportunity of using the ample material always associated with the Newcastle school He was at his best in the outpatient room or at the bedside and as a clinical lecturer He did not enjoy formal lecturing He had ideas about the future of the medical profession and in many ways was much in advance of his time Early experience in general practice had made him realise the evils of the club system and he supported every effort of practitioners to improve the conditions of their work Sometimes he was an over enthusiastic reformer I have a vivid recollection of the consternation at a medical meeting when he alleged that consultants were doing general practice 'If that is not so' he said, 'what do they do with their carriages?' He was a believer in group medicine and looked forward to institutions where patients of all classes could come for advice from a team of well trained workers Such a scheme, formulated and worked out in his mind, was so familiar to me that it came as a shock of surprise, on visiting the Mayo Clinic in 1906, to find there in being what Morison had always envisaged"

THE LATE PROF WINGATE TODD

Prof Woollard writes Wingate Todd was a large man and his industry was amazing During vacations he would rise at 5 A M and work until the household and the guests (he had adopted completely and easily the American ideas of hospitality) straggled in to breakfast He was always the most eager for expeditions, walks, swims, and the like, and when the rest of the house had gone to bed he would start work again His literary and scientific output, both of formal communications and less formal addresses, was prodigious His main interest was in the growth of the body, and by growth he meant not merely increase in size but also the orderly sequence of development His approach to this major theme began with his work in the anatomy department at Manchester under Elliot Smith Todd's first researches were concerned with the condition of cervical rib, and it was the consideration of this anomaly that revealed to him the need for an accurate knowledge of the successive phases in the growth of the structures of the body

For such a research time money, and material were necessary The opportunity of getting these and so making a start upon an adequate scale came when he was appointed head of the department of anatomy in Western Reserve University Cleveland, Ohio Through his unceasing drive the Hamann museum of that university became the largest single collection of human skeletal material of known age and sex and eventually contained an eighth of all the anthropoid skeletal material available for study anywhere The Brush Foundation, the Charles Bingham Bolton fund and other contributions provided the money for the most comprehensive investigations Time was multiplied by extending unreasonably his own working day, and by gathering around him a great company of anatomists, doctors dentists comparative anatomists, anthropologists radiologists, and the like. Todd learned to find in the X-ray film not merely an estimate of the present state of growth and development but also a record of the past in the shape and markings of the bones, the signs of acceleration and retardation together with the evidence of the shifting of growth from one part to another, and the perfection or imperfection of the rectifications consequent upon earlier deprivations For each stage in development he wished to set up a calendar, an index of maturation as he called it, which would represent the normal achievement of the body For this purpose he and his colleagues studied innumerable closely graded series of osseous structures in beasts, apes, and men—the age-changes of the bony surfaces of the human symphysis pubis, the growth of the facial skeleton in thyroidectomised sheep, the increase in size of the skull of the hyena, and so on

More recently he set out to establish an index of maturation based on the repeated examination of hundreds of boys and girls. The hands, wrists, and the extremities of the bones of the forearm were selected as the most convenient and useful for the purpose. In order that all the films might be truly comparable, each one was taken under standard conditions, and in one corner of the film was included the special density scale reading In addition to the film a record was kept of the results of clinical examination, the scholastic progress, the economic level of the home, and the behaviour of the child Todd has related how the creation of this skeletal index of human growth entailed the repeated study of a quarter of a million films and interviews with more than four thousand people, in addition to the work of recording, classifying, and collating the study of the films with the other findings. Todd's "Atlas of Skeletal Maturation," in which his results are set out, is probably the most careful and detailed record of the rate of growth and development under optimum conditions yet compiled.

Dr. CHARLES EDWARD ALEXANDER MACLEOD, who died at his home in Kensington on Jan 9, was the eldest son of Colonel Alexander MacLeod, I.M S, and grandson of John MacLeod, surgeon-general of Madras. His great-grandfather, one of the MacLeods of Skye, is said to have helped to row the Young Pretender to safety. Dr MacLeod was educated at Shrewsbury and the Westminster Hospital and qualified in 1891 After holding house appointments at the Westminster Hospital and elsewhere, he took his F R.C S in 1895 Soon afterwards he started in general practice in Kensington and was actively engaged there until six weeks before his death His two eldest sons are carrying on the long medical tradition of the family.

LETTERS TO THE EDITOR

A NEW REMEDY FOR EPILEPSY

SIR,—In view of the correspondence about the new anti-convulsant drug, sodium diphenyl-hydantoinate (Dilantin in America, Epanutin in Great Britain), introduced by Merritt and Putnam for the treatment of epilepsy, it may be helpful to indicate my own short experience of the drug. Messrs Parke Davis kindly provided me with sufficient supplies for the treatment of a series of patients at the Maghull Epileptic Homes, to which I am consulting physician, and where I have the coöperation of the two local medical officers, Drs. Nesbitt and Burrows. I started cautiously, rather afraid of possible toxic reactions and still more scared after reading Dr. Schlesinger's letter in your issue of Nov 5. I selected patients who had been in the Homes for some years; it must be remembered that during the whole of this time they had been "soaked" in the usual anti-epileptic drugs such as bromides, borax, and Luminal.

CASE 1.—For a year previous to treatment by epanutin he had been on full doses of bromide and borax, with luminal gr. 1 at night During that time he had 77 minor and 73 major attacks The bromide, borax, and luminal were gradually discontinued until he was taking a capsule of epanutin t d.s only. He had no fits (save for a minor one before he was fully under the new treatment), until the dose of epanutin was reduced to two capsules a day because of an albuminuria which on investigation was found to be due to a *Bacillus coli* urinary infection. On the reduced dosage he had 3 major fits in November and 4 in early December, but with the disappearance of the urinary infection the dose was increased to three capsules a day and since then he has had no more fits Thus over a period of four months he has had 1 minor and 7 major attacks, the major fits occurring only when he was on a reduced dosage. In the corresponding months of the previous year he had had 15 minor and 14 major attacks.

CASE 2.—During the previous year, when he was having sod bromide gr. 10 and borax gr. 10 t.d s, he had 14 minor and 65 major attacks. In the four months of treatment with epanutin he has had no minor and 4 major attacks There have been no fits since Dec. 6, when the dose was increased to four capsules a day He was restored to three capsules a day at the beginning of the year. The figures for the corresponding months of the previous year are 2 minor and 24 major attacks.

CASE 3.—The previous year saw 26 minor and 190 major attacks, although he was having bromide, borax, and belladonna, and luminal gr. 1 morning and night. In September and October he had a large number of very severe major fits—32 in September and 34 in October. In the two months of epanutin treatment (three capsules a day) he has had no minor and 10 major attacks. The figures for the corresponding months of the previous year were 7 minor and 21 major It will be interesting to see if an increase to four capsules a day is effective in obtaining more clear-cut control.

CASE 4—In the previous year he had 59 minor and 224 major attacks Since having two months' treatment with epanutin (three capsules a day) he has had 1 minor and 5 major attacks The figures for the corresponding months of the previous year were 6 minor and 27 major attacks. For the six months previous to being put on epanutin he was having an average of 21 major attacks a month, in spite of being on bromide, borax, and luminal

CASE 5.—In the previous year there were 5 minor and 126 major attacks. Epanutin (three capsules a day) has now been given for two months, and to date he has had only 1 major attack.

I have not selected for report any cases which have been under the new treatment for less than two months One patient has had epanutin (three capsules a day) for a month without any apparent effect on the number of fits Two patients with mental deterioration were given the drug for a week or two, and it was then discontinued as being perhaps hardly a fair test. To only one patient have we given more than three capsules in the 24 hours There have been no toxic manifestations as yet among o patients, save for "giddiness" in one of the abovementioned patients with mental deterioration

It is clear that in most of the patients we have treated so far epanutin is far more effective in reducing the number of fits than bromide, borax, and luminal But even if it did not alter the usual incidence of fits, it might well be the medicament of choice, for the patient who has been "doped" with bromide and luminal for years is so often mentally dull, with a spotty face and a dirty tongue—toxic manifestations which are unpleasant both for the patient and those about him Our patients on epanutin are usually brighter and feel better, with clean tongues, and the discontinuance of bromides allows them to recover from the acneiform drug rash which is so common Even the patient mentioned earlier, whose fits have not been appreciably modified by a month's treatment with epanutin, is described now as "looking much healthier, and a different boy mentally" The most striking illustration of this is case 5 He was a very dull, negative type of patient, depressed, and gradually deteriorating mentally year by year A few weeks after he had been put on the new treatment he was found gaily sliding down the banisters, a thing so unbelievable in this young man that it almost became a nine days' wonder throughout the colony

Obviously much trial and observation will be needed before epanutin can establish itself as the drug of choice for most cases of epilepsy, and those who use it should bear in mind your recent annotation (*Lancet*, Oct 22, 1938, p 956) Especially important are the questions whether it will lose its efficacy when used over a long period and whether it will produce late toxic manifestations Nevertheless, the drug seems to hold out great promise, and enough is already known about it to justify its trial, naturally with the careful supervision proper to a remedy for which a final "body of knowledge" has not yet been accumulated In addition to routine clinical watchfulness the doctor using this drug would be wise to test his patient's urine frequently for albumin and urobilin

I am, Sir, yours faithfully,

ROBERT COOPE.

Liverpool Jan 14

WHITHER THE ALMONER?

SIR,—The writer of the annotation with this title, in your issue of Jan 7, mentions my name and fathers upon the Westminster Hospital intentions of which it is innocent Our almoners do not "claim medical knowledge" nor is it proposed to delegate to them the work of the medical staff. Far from adopting any plan that will "weaken contact between hospital staff and practitioner," our determination is to ensure the closest and most intimate association Your representative at a public dinner no doubt heard, in brief outline, something of our proposals Had he made inquiry he would not have viewed the matter obliquely enough to provoke such an anonymous letter as *followed* in your last issue signed "House Governor"

Before planning the new building of the Westminster Hospital an endeavour was made to view our own organisations, not as they ought theoretically to function but as in fact they worked or failed to work, and to adapt the new structure to function as perfectly as possible Experience with follow up work showed us that in our own and in some other institutions the greatest efficiency was found in the almoner's department The clerks for the resident registrars, in writing to doctors, constantly made use of records in the almoner's department, or duplicated the information, the clerk in the administration offices, who dealt under the direction of the medical staff with admissions, had further files and indices covering much of the same ground

What we have done in the new building is to place three communicating rooms on each floor, all in the same vertical plane, in direct contact by service lift and vacuum tube with one another and with the head office of the almoner and the records department In one room is the almoner, in the next her clerk and stenographers, and in the next the records clerk All these women, on each floor, are under the supervision of the floor almoner, who is of course under the chief almoner and in the closest touch with her We happen to call this whole organisation "the Almoners' Department," and a good case can be made for so doing, but, if the choice is a cause of stumbling to the innocent, let the Editor of the *Lancet* solve the problem in nomenclature which proved too much for the Institute of Hospital Almoners

In this department there are several services all using the same records of person, place, and connexions The almoner will function as the institute's brochure sets forth The stenographers will be available for the medical staff to write their reports to the practitioners, the records staff will be handy to ensure the issue and return of notes, the telephonist will be available for communication to or from all practitioners to the units on each floor This is not the place to elaborate further, but I hope enough has been said to avoid further misconception of our intentions The whole aim of our plan is to draw closer the connexion between the general practitioner and the hospital, and to facilitate both his work and ours in the best interest of his patients

I am, Sir, yours faithfully,

Brook Street, W 1, Jan 16 E ROCK CARLING

SIR,—I am seldom moved to expostulate about a letter in the *Lancet* and still less seldom write about it But the communication in your last issue from "House Governor" attacking, I presume, the work of hospital almoners stirs me to answer I cannot understand its full implications, couched in the most mysterious obscurity of phrase and meaning But I want to say that in my hospital and my department the almoners' work is of great value and often of prime importance in our work I do not think "House Governor" should be anonymous nor without address, however obscure his letter may be Let the criticism be less hidden

I am, Sir, yours faithfully,

R D LAWRENCE

Diabetic Department, King's College
Hospital S E 5, Jan 16

*** We published House Governor's letter because we think it right to ventilate the opinions of those well qualified to form them The disadvantages of anonymity may be outweighed by the advantages of free discussion —ED L

OILY SUSPENSIONS OF SULPHANILAMIDE COMPOUNDS

SIR,—Dr Long rightly interprets the remarks made in my Bradshaw lecture (*Lancet*, Nov 12) as implying that "in certain instances" the pyridine compound, M & B 693, may be given parenterally in oily suspension Thereby he at least gives me credit for not advocating the procedure as a routine Whatever may have been the total number of cases of dangerous complications from sulphanilamide therapy in Dr. Long's presumably large experience, one cannot assess their significance unless information is also given as to the number of treated cases not manifesting these complications and also the amount of drug administered. When making use of a powerful remedy for the treatment of a dangerous disease such as pneumonia, one must consider not only the risk which the patient runs from the remedy but also the risk from the disease itself. "In certain instances," indeed in many, the last-named risk is the greater.

I am, Sir, yours faithfully,

L. E. H. WHITBY.

Bland-Sutton Institute of Pathology, Middlesex Hospital, London, W. 1, Jan. 16.

PROPHYLAXIS WITH SULPHANILAMIDE

SIR,—I have read with interest Dr. E. D. Hoare's stimulating account of his experimental work with sulphanilamide and T.693 used prophylactically against streptococcal infections (*Lancet*, Jan. 14). He suggests the use of these drugs as a protective measure in maternity cases where there is believed to be special risk of infection with hæmolytic streptococci These drugs have been giving such remarkable results that his suggestion is certain to be followed by many workers, and rightly so, but attention must be given to possible toxic effects upon the fœtus; these are, perhaps, chiefly to be expected and looked for in the hæmatopoietic system of the newborn infant This system is known to be a delicate one, subject to pathological states, such as erythroblastosis fœtalis, which illustrate its extremely labile nature.

Seeing that the sulphanilamides have caused hæmolytic anæmia, agranulocytosis and aplastic anæmia in adults, it is important that any clinical worker who makes use of these compounds to prevent puerperal infection should, from the beginning of his observations, take due note of the effect on the newborn infant At present T 693, which has relatively little destructive action on the blood, is probably the safest sulphonamide for this purpose, but even it is not without danger to the leucopoietic system, especially when the total amount of the drug administered is large

I am, Sir, yours faithfully,

REGINALD LIGHTWOOD.

Brook Street, Grosvenor Square, W. 1, Jan 16.

FRACTURE OF THE PATELLA

SIR,—I was much interested in the clinical note by Dr. Mehriz in your issue of Jan. 14 describing his experiences in performing the operation of removal of the patella, and especially in the radiogram of his case, showing a shadow at the site of the sutured quadriceps I do not think Dr. Mehriz is correct when he interprets this shadow as due to the regeneration of bone The patella is a sesamoid bone, developing from cartilage, and does not have a periosteal covering. A more likely explanation of this shadow appears to be calcification round his sutured material, or heterogeneous calcification as the result of hæmorrhage.

Since writing my original article I now advocate the use of a fascial transplant to repair the gap, should there be difficulty in bringing together the quadriceps expansion. Even when the quadriceps expansion is brought together under tension it appears to join firmly. I had an example of this last year in a case in which three months after the excision of the patella for a comminuted fracture the patient slipped from the pavement with resulting weakness of the knee The previous operation site was explored by Mr Todd, when it was found that my opening round the quadriceps in front of the knee had firmly joined, but that the vastus internus muscle belly had torn away from its insertion into the vastus expansion.

I still think that the operation of removal of the patella should be reserved for cases of comminuted fracture, cases which have been wired in bad position, or cases of osteo-arthritis with much lipping

I am, Sir, yours faithfully,

Devonshire Place, W. 1, Jan 17 G. O. TIPPETT.

LORD HORDER AND THE *DAILY MAIL*

SIR,—Your attention may have been drawn to an article which appeared in the *Daily Mail* of Thursday last referring to Lord Horder and stating that he had been assisting behind the scenes in the filming of Dr. Cronin's book "The Citadel." This statement Lord Horder informed us was unfounded In consequence a paragraph of correction was published in today's *Daily Mail*, in which we expressed our apologies to Lord Horder for the mistake that had arisen I send you a marked copy of today's *Daily Mail*, as you may think it desirable to refer to the matter.

I am, Sir, yours faithfully,

STANLEY BELL,
Managing Director

Associated Newspapers Limited, Northcliffe *House, E C 4, Jan 16.*

⁂ The paragraph runs as follows:—

Lord Horder and "The Citadel"

"Lord Horder informs us that the references to him in Hamish Fraser's article in last Thursday's *Daily Mail* dealing with the production of the film of Dr. Cronin's 'The Citadel' are entirely unfounded.

'I had nothing whatever to do with the film in an advisory or any other capacity,' says Lord Horder.

'I have never even read the book nor seen the *film at any stage in its preparation or since, and am* unable to understand how the article came to be written.'

"We desire to express our sincere apologies to Lord Horder for the unfortunate error which was made."

"... We are clinicians, not stamp collectors And yet we are continuously assailed on every hand by a public, medical and lay, which demands a simple nominal solution to be neatly pigeon-holed or filed Doctors and dressers say: 'Well, what is the answer?' Patients and their relations say: '*We insist on getting to the bottom of this,* what is the Cause?' Poor ignorant souls, they are very trying, and often infuriating What can their conception of a *primum mobile* be? I only wish we could give them the answer they require—it seems to be far more important to them than treatment, even successful treatment, but most of us have a streak of intellectual honesty (or professional snobbishness) which prevents our inventing an impressive word or phrase to meet the occasion ... *someone must hold the fort of truth in a world* that is hysterical, confused and seeking after miracles. It is even better to say: 'I do not know.' You can add 'Although I am generally supposed to be the greatest living authority on this subject!' That is at least an honest and harmless lie, and you may get away with it"—FRANK COOK. *Guy's Hosp. Gaz.* 1938, 52, 401.

MEDICAL NEWS

Royal College of Surgeons of England

A meeting of the council was held on Jan 12 with Mr Hugh Lett, the president, in the chair It was reported that at the recent primary examination for the fellowship held in Lahore 6 out of 31 candidates were approved, and at the examination held in London 83 out of 236 candidates were approved The Hallett prize was awarded to Mr A McK Large, of the University of Toronto

Prof R E Kelly was reappointed as the representative of the college on the court of the University of Liverpool, and Dr Gilbert Orme was appointed representative on the council of the Queen's Institute of District Nursing Prof Graham Simpson was appointed as the Bradshaw lecturer for this year

Diplomas of fellowship were granted to J K Cunninghame of Otago and Mohamed Fatin of Cairo, and a diploma of membership to P D Swinstead of St Bartholomew's Hospital

The following diplomas were granted, jointly with the Royal College of Physicians of London —

D P M—J T D Clark, H N Davy Nagendranath De A K Deb P F Fletcher A R Garner Robert Gibson, Y H Gulenena Daisy G Iliff Norman Langdon Down J MacW MacGregor, R D Newton Chelliah Ponnambalam J J Ryan and W T H Wales

D.L.O—K H Bazirgan, A H R Champion H G Earnshaw, Osman Fawzy, J R Hutcheon D T Martin N M Mody, G A Moulden, T R Pahwa H V Suryanarayan Rao

The following hospitals were recognised for the six months' surgical practice required of candidates for the final fellowship examination Victoria Hospital, Blackpool (surgical unit No 1), Royal Infirmary, Lancaster (first and second house surgeons), and Prince of Wales's Hospital (Devonport section), Plymouth (senior house surgeon to July 31, 1942)

University of Glasgow

The address on the surgery of the eye in Hungary which Prof Emile de Grósz was to have delivered in the department of ophthalmology of the university on Jan 18 had to be postponed He will give it instead on Tuesday, April 25, at 8 15 P M

Harveian Society of London

The annual general meeting of this society was held on Jan 13 when Dr A D Morris, the new president, was inducted The following were appointed to serve on the council of the society for the coming year —

Dr Morris (president) Dr F S Cooksey, Mr M F Nicholls, Dr G de Bec Turtle, and Mr E G Muir (vice presidents) Mr Cecil P G Wakeley (treasurer) Dr H L Glyn Hughes and Mr W Eldon Tucker (secretaries) Dr N Gray Hill Dr Gilbert Orme Dr H Moore Dr F Tallent Nuthall Mr M J H Peel Mr A E Sawday Dr James Tait, Dr John Taylor, Mr A Simpson Smith Sir Alfred Webb-Johnson Mr John Hunter, and Mr Wallis Kendall *(members of council)*

Refugee Nurses

At a meeting of the Gateshead public assistance committee on Jan 9 a resolution was carried refusing to accept two refugee nurses as probationers at Gateshead Institution for each of the next four years A circular had been sent to Gateshead, among other local authorities, by the nursing subcommittee of the Coördinating Committee for Refugees, asking for help in placing refugees, and the resolution was passed in reply to this circular

Child Guidance Conference

The fourth biennial Child Guidance Inter-clinic Conference will be held on Jan 27 and 28, at B M A House, Tavistock Square London, W C 1 Subjects for discussion will include treatment of parents juvenile delinquency, personality deviations and diagnosis of psychoses the scope of the educational psychologist working in the schools and substitute homes At the session for administrative representatives the findings of the Feversham report on the voluntary mental health services will be considered as they affect the policy and administration of the child guidance movement Further information may be had from the secretary of the Child Guidance Council, Woburn House, Upper Woburn Place, W C 1

King's College Hospital, London

The next meeting of the Listerian Society will be held at this hospital on Jan 25 at 8 30 P M, when Dr Robert Hutchison, the president of the Royal College of Physicians, will speak on medical literature

Ophthalmic Exhibition

Today, Friday, Jan 20, at noon, Sir Francis Fremantle will open the National Eye Service Exhibition at the Charing Cross underground station booking hall The exhibition has been arranged by the National Ophthalmic Treatment Board, 148, Great Portland Street, London, W 1, from whom further information may be had

International Cancer Congress

Membership blanks for the third International Cancer Congress, which is being held in Atlantic City in September, may now be had from the offices of the British Empire Cancer Campaign 11, Grosvenor Crescent, London, S W 1 Further information about the congress may be obtained from Mr Cecil Rowntree, 17, Harley House, N W 1

Society of Radiotherapists of Great Britain and Ireland

A meeting of this society will be held today, Friday, Jan 20, at 5 P M, at 11, Chandos Street, London, W 1, when Prof R S Pilcher, Mr G F Stebbing Dr Dobbie, Mr R F Phillips and Mr T A Green will open a discussion on carcinoma of the larynx, lesions in the arytenoids, aryepiglottic folds, and pyriform fossa

Order of the Nile

Dr A F Bernard Shaw, professor of pathology in the University of Durham, has been given permission to wear the insignia of commander of the Order of the Nile, bestowed on him by the King of Egypt for his services as professor of pathology in the Farouk University at Cairo

Award of Pavlov Prize

It is announced by the Academy of Sciences of the U S S R that the I P Pavlov prize for 1938 has been awarded to Honoured Worker in Science I S Beritashvili, professor of physiology at Tbilisi University Previous holders of the prize have been Academician L A Orbeli and Prof A D Speransky The present recipient, Prof Beritashvili, is the author of numerous works on the physiology of the central nervous system, published in Russian and foreign languages

Cod-liver Oil for Spain

The first Humber food ship the *Ragnhild* taking supplies from the people of Yorkshire to refugees in Spain, included in her cargo 30 tons (about 7500 gal) of cod liver oil, representing a fifth of the total value of the cargo The cod liver oil was supplied at cost price by the Hull trawler-owners who state that they are prepared to supply almost unlimited quantities on the same terms for relief work or refugees in any country

Hospital Amalgamation at Sheffield

The Act of Parliament amalgamating the Royal Infirmary, Sheffield, and the Sheffield Royal Hospital came into operation on Jan 1, and the new governing body at its first meeting on Jan 3 elected Sir Ronald Matthews its first chairman, Mr Fred M Osborn, deputy chairman, and Mr W H Booth secretary Two boards were also appointed, one to manage each institution, and a finance committee The amalgamated hospitals will be known as the Royal Sheffield Infirmary and Hospital

An appeal for £1 000 000 was launched in July on behalf of the Sheffield voluntary hospitals The fund will be used to finance extensions at the Jessop Hospital for Women and at the Children's Hospital and also to purchase a site near the university and to build there a new general hospital of some 500 beds The whole group together with the medical school of the university, will form a hospital centre which will serve not only the city of Sheffield but also the large area surrounding it

Medical Diary

Jan. 23 to Jan. 28

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole Street, W 1.

MONDAY

Odontology 8 P M, Dr E Wilfred Fish: Calcified Tissue of Repair Prof H Humphreys: Teeth from a Case of Hypoparathyroidism

TUESDAY

Medicine 8 30 P M, Prof J A Ryle, Dr J H Sheldon, and Dr A W Spence · Anorexia Nervosa

THURSDAY

Urology 8 30 P M, Mr. Terence Millin · The Surgical Treatment of Urinary Incontinence Mr Victor Bonney will also speak

FRIDAY

Disease in Children 5 P M (cases at 4.15 P M), Mr David Levi (1) Osseous Dystrophy Dr F Parkes Weber. (2) Dwarfism of Uncertain Causation Dr R S Illingworth (for Dr Donald Paterson): (3) Congenital Cystic Lung

Epidemiology and State Medicine 8 15 P M, Dr R E Smith: Epidemiological Problems of Poliomyelitis in Schools Dr G O Barber will also speak

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W 1

MONDAY—8 30 P M, Sir Henry Gauvain and Dr C P Symonds. Poliomyelitis, including Artificial Aids to Respiration

ASSOCIATION OF INDUSTRIAL MEDICAL OFFICERS

FRIDAY—6 P M (London School of Hygiene, Keppel Street, W C 1), Mr Frederick Ridley and Dr F H C Beards The Eyes of the Industrial Worker Mr J Minton will show a film on the Prevention of Industrial Eye Injuries

SATURDAY—10 A M, visit to the Albert Dock Hospital at Custom's House, E 16, Mr H E Griffiths demonstration

KENSINGTON MEDICAL SOCIETY

WEDNESDAY—8 30 P M (St Mary Abbots Hospital, Marloes Road, W 8), Dame Louise McIlroy and Prof James Young. Diet in Pregnancy

LONDON JEWISH HOSPITAL MEDICAL SOCIETY, Stepney Green, E 1

THURSDAY—3 45 P M, Sir Maurice Cassidy The Consultant Looks upon the Practitioner Dr J Snowman The Practitioner Looks upon the Consultant

MEDICO-LEGAL SOCIETY

THURSDAY—8 30 P M (26, Portland Place, W 1), Dr Kenneth McFadyean · The Death of Edwin Bartlett

BRITISH PSYCHOLOGICAL SOCIETY.

Medical Section

WEDNESDAY—8 30 P M (1, Wimpole Street, W 1), Dr Denis Carroll · The Psychotherapy of the Psychoses (Presidential address)

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS, Lincoln's Inn Fields, W C 2

FRIDAY—5 P M, Mr E W Riches. Hydronephrosis—the Results of Conservative Treatment (Hunterian lecture)

ROYAL COLLEGE OF OBSTETRICIANS AND GYNÆCOLOGISTS, 58, Queen Anne Street, W 1

FRIDAY—5 30 P M, Mr Alan Brews · Hydatidiform Mole and Chorion-epithelioma (Blair-Bell lecture)

TAVISTOCK CLINIC, Malet Place, W C 1

MONDAY—4 30 P M, Dr H V Dicks · Phobias

THURSDAY—2 30 P M, Dr G W. B James Physical and Psychotic Syndromes 3 30 P M, Dr J R Rees · Emergency Treatment of Neurotic States 4 30 P M, Dr T W Mitchell. Pregenital Phases

INSTITUTE OF PSYCHO-ANALYSIS, 96, Gloucester Place, W 1

TUESDAY—8 30 P.M, Dr Denis Carroll · Psychoses

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane Road, W 12

MONDAY—4 30 P M, Prof J Henry Dible · Nephritis

TUESDAY—4 30 P.M, Dr Izod Bennett: Nephritis

WEDNESDAY—NOON, clinical and pathological conference (medical) 2 P M, Mr E J King, Ph D Jaundice and Tests of Liver Function 3 P M, clinical and pathological conference (surgical) 4 30 P M, Prof Shaw Dunn: Nephritis, and Renal Changes in Hypertension

THURSDAY—2 15 P M, Dr. Duncan White. radiological demonstration 3 30 P.M, Mr J M Wyatt. Obstetric Emergencies

FRIDAY—2 P M, clinical and pathological conference (obstetrics and gynæcology) 2 30 P M, Mr R Watson Jones Fracture Dislocations and Other Injuries of the Joints

Daily, 10 A M to 4 P M, medical clinics, surgical clinics and operations, obstetrical and gynæcological clinics and operations

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W C 1

THURSDAY—2 P M, Dr Donald Paterson · So-called Acidosis Attacks 3 P M, Mr A Simpson-Smith: Intussusception and Volvulus

Outpatient clinics daily at 10 A M, ward visits at 2 P M

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn Road, W C 1.

FRIDAY—4 P M, Mr J D McLaggan: Acute Mastoiditis

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL, N W 3

WEDNESDAY—4 P M, Mr Cameron MacLeod: Common Diseases of Thyroid Gland

MAIDA VALE HOSPITAL FOR NERVOUS DISEASES W 9

THURSDAY—3 P M, Dr Russell Brain: clinical demonstration

LONDON SCHOOL OF DERMATOLOGY, 5, Lisle Street, W C 2

TUESDAY—5 P M, Dr L Forman · Sycosis

THURSDAY—5 P M, Dr G Duckworth. Erythemato-squamous Eruptions (Chesterfield lectures)

ST JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE, Ranelagh Road, S W 1.

FRIDAY—3 30 P M, Mr H J Taylor, Ph D · The Physical Basis of Treatment in the Rheumatic Diseases

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole Street, W 1

MONDAY to SATURDAY—BROMPTON HOSPITAL, S W 3, all-day course in chest diseases—ST JOHN'S HOSPITAL, 5, Lisle Street, W C 2, afternoon course in dermatology (Open to non-members)—ST PETER'S HOSPITAL, Henrietta Street, W C 2, all-day course in urology

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION

WEDNESDAY—4 15 P M (Western Infirmary), Mr M Logan Taylor. Gall-bladder Disease and Treatment

Vacancies

For further information refer to the advertisement columns

Army Dental Corps—Commissions
Barbados General Hosp—H S and anæsthetist, £450
Barrow-in-Furness County Borough—Asst M O H. and asst. school M O, £500
Belgrave Hosp for Children, Clapham Road, S W 9—Asst. physician
Benenden, Kent, National Sanatorium—H P, at rate of £150
Birmingham New Centre Hosp—Asst to radiological dept. £400
Birmingham University—Third lecturer in bacteriology and asst bacteriologist in public health laboratory, £350
Brighton, Royal Alexandra Hosp for Sick Children, Dyke Road—Hon physician Also H P, £150
Burton-on-Trent General Infirmary—Cas O and H P, £150
Central London Ophthalmic Hosp, Judd Street, W C 1—Hon asst physician
Chorley and District Hosp—H S, at rate of £150
Cheshire Education Committee—Asst school M O, £500
Derby County—Deputy county M O H, £840
Dorking County Hosp—Res asst M O, at rate of £250
Dreadnought Hosp, Greenwich, S E 10—Receiving-room officer £150 H S at rate of £110 Also hon dermatologist
Durham County Council—Asst school M O, £500
Edinburgh, Eastern and Northern General Hosps—Res H P's each at rate of £100
Edinburgh, Margaret Rose Hosp for Crippled Children, Fairmil head—Res surg O, £100
Essex County Council and Corporation of Chingford—Asst. county M O and M O H, £400
Evelina Hosp for Sick Children, Southwark, S E 1—H P, at rate of £120
Exeter City and County—Deputy M O H and asst tuber officer, £550
Home Office, Air-Raid Precautions Dept, Whitehall, S W—Medical instructor, £550
Hosp for Sick Children, Great Ormond Street, W C 1—Clin pathologist, £600
Lancaster County Mental Hosp—Asst M O, £550
Leamington Spa, Warneford General Hosp—Res cas O and H S, at rate of £150
Liverpool, Alder Hey Children's Hosp.—Res asst M O's each at rate of £200.
Liverpool City—Res asst M O's for special hospitals, each £200
Liverpool Heart Hosp—H P, at rate of £100
Liverpool Royal Children's Hosp, Myrtle Street—Res cas O at rate of £250
London County Council—Temporary part-time rheumatis registrar, £350 Asst M O's Class I, each £350 Al asst M O's Class II, each £250
Maidstone, West Kent General Hosp—H S, £175
Manchester, Christie Hosp and Holt Radium Institute—Hon physician
Manchester Ancoats Hosp—Radiological officer, £100
Manchester Royal Children's Hosp, Pendlebury.—Res surg O, at rate of £150.
Manchester Royal Eye Hosp—Jun H S, £120.
Margate and District General Hosp—Res M O, £150
Middlesbrough Education Committee—Asst school M O, £5
Middlesbrough, St Luke's Mental Hosp, Grove Hill—Asst M O and deputy med supt, £550
Middlesex County Council—Physician (Grade II), £650 A cas M O., at rate of £350
Miller General Hosp, Greenwich Road, S E 10—Asst ra logist £100
National Hosp, Queen Square, W C 1—H S, £100
Newcastle-upon-Tyne Hosp for Children—Two H S's, each rate of £100
New Zealand, Otago University Medical School—Profes medicine, £2000 Also lecturer in biochemistry, £650
Portsmouth Royal Hosp—Cas O, at rate of £130
Preston, Biddulph Grange Orthopædic Hosp—Jun H.S, at r of £200

ess Elizabeth of York Hosp for Children, Shadwell E 1—Hon radiologist for X ray and electro-therapeutical ept

Mary's Hosp for the East End, Stratford, E 15—Hon asst. aural surgeon

s Hosp for Children, Hackney Road E 2—H S, and as O, each at rate of £100

m Institute, Riding House Street, W 1—Res M O, at ate of £250

ond, Surrey Royal Hosp—Jun H S, £100

ham Municipal General Hosp—Asst res M O, £350

Air Force—Commissions

Free Hosp, Gray's Inn Road, W C 1—Asst M O in D dept, £300

London Ophthalmic Hosp City Road, E C 1—Three ut-patient officers each £100

Naval Medical Service—M O 's

Borough, &c—Deputy M O and deputy med supt, 500

end-on Sea General Hosp—First H S at rate of £100

lbans, Shenley Hosp for Nervous and Mental Illness—ifth asst M O, £485

orge's Hosp, S W 1—Res asst physician £250

Mary's Hosp for Women and Children Plaistow E 13—es surg O and res H P at rate of £155 and £150 espectively

ncras Borough Council Public Health Dept, Euston Road, W 1—M O for gynæcological clinic, 2 guineas per onsultation

g District Mental Hosp, Larbert—Third asst M O, £300 lso fourth asst M O, £250

rsity College Hosp Gower Street, W C 1—Registrar to Royal Ear Hospital, £250

ll General Hosp—Res surg O

Park Sanatorium—Asst M O, £300

End Hosp for Nervous Diseases, Gloucester Gate N W 1—wo res H P 's, each at rate of £125

London Hosp, Hammersmith Road, W 6—Res surg eg and tutor £225

London Hosp Medical School, W 6—Lecturer in forensic nedicine

Riding, Keighley and District Victoria Hosp—Second es. M O, at rate of £120

rhampton Royal Hospital—H S for fracture and ortho aedic dept, at rate of £100

wich and District War Memorial Hosp, Shooters Hill, S E 18
Ion anæsthetist

County Hosp—H P £1 0

Chief Inspector of Factories announces vacancies for xamining Factory Surgeons at Burton on Trent (Stafford), ddingham (Yorks, W R) Buxton (Derby) New Southgate Middlesex), and Maryport (Cumberland)

Births, Marriages, and Deaths

BIRTHS

AM —On Jan 12, the wife of Mr Roy Banham F R C S, f Northampton—a son

TBEE —On Jan 15 the wife of Major J H Boulbree .M S, Dublin—a son

BELL.—On Jan 12, at Rugby, the wife of Dr George Campbell—a son

ELLE —On Jan 14, the wife of Dr Gordon M Frizelle, of Leicester—a son

LETT —On Jan 12, at Welbeck Street, W 1 the wife of Mr Charles Leonard Gimblett, F R C S —a son

SON —On Jan 14 at the London Clinic the wife of Dr Bernard R M Johnson—a daughter

OCK —On Jan 11 at Aberdeen, the wife of Dr A M Kellock—a daughter

T —On Jan 9, at St Thomas's Hospital, the wife of Dr L H B Light—a son

OLSON —On Jan 3, at Hong Kong the wife of Surg.-Comdr J B Nicholson R N —a son

KLETON BAILEY —On Jan 15 at Norwich, the wife of Dr Shackleton Bailey—a daughter

H.—On Jan 15, at Newcastle on Tyne, the wife of Dr David Smith—a son

ON —On Jan 10, at the London Clinic, the wife of Dr R J C Sutton—a son

KER.—On Jan 12 1939 at Rainton Gate co Durham to Dr and Mrs G F Walker—a son

MARRIAGES

ES—WOOLLEY —On Jan 10 at St Werburgh's Church, Bristol, P W J Parkes M R C S to Margaret Woolley

DEATHS

ABY —On Jan 11, Edgar Edward Cornaby, *B Chir Camb*, M R.C.S, of Vaughan Avenue W 6

INER.—On Jan 7 at St Martin's Guernsey John McIntire Falkiner F R C S I, Barrister-at Law, late of Assam and Ceylon, aged 70

NGER —On Jan 11 at Kingston Blount Oxon, Edgar Bridden Granger, M R C S aged 85

HTON.—On Jan 15, 1939, suddenly, at Stanmore, Middlesex, James Millar Laughton M B C M aged 72

—On Jan 15, at Norwich Sydney Herbert Long, M D Camb, aged 68

RSON —On Jan 10 at Ascot Alexander Gordon Paterson, M D Edin, aged 79

TON —On Jan 14 at St Annes-on Sea J M S Preston, M B C M Edin

—A fee of 7s 6d is charged for the insertion of Notices of Births Marriages and Deaths

Appointments

Christie Albert M B Aberd visiting anæsthetist to the Victoria Infirmary Glasgow

Cochrane George M B Glasg D P H medical officer of health for the borough of Buxton and rural district of Chapel-en le Frith

Farris C D M R.C.S L D S chief assistant in the dental department of St Bartholomew's Hospital, London

Field C Elaine M D Lond first assistant in the children's department of University College Hospital London

Garvey, M M M B Glasg second assistant resident medical officer at Woodilee Mental Hospital Glasgow

Jenkins T P N M B Lond assistant medical officer at Farnham County Hospital

Jones E Ellis M B Lond, house physician to the Salisbury General Infirmary

Lorriman, Gerrard M B Durh, medical registrar at the Royal Victoria Infirmary, Newcastle-on Tyne

Lyth Constance M F, M B Manc, resident house surgeon at the Royal Manchester Children's Hospital, Pendlebury

Macgregor, Alexander M B Camb, L D S, assistant dental surgeon to St Bartholomew's Hospital London

Owen J R, M R C P hon assistant physician to the Hospital for Diseases of the Skin London

Reynolds, S J M B Camb, D.M R E, hon clinical assistant in the X ray and electrotherapeutic department at Charing Cross Hospital London

Thatcher R D, M R C S, resident medical officer at Salisbury General Infirmary

Examining Surgeons under the Factories Act 1937 Dr A G **Wilkinson** (Esham District Surrey), Dr J G **Chaipel** (Fakenham District Norfolk) Dr G R **Lunn** (Melton Mowbray District, Leicester)

THE SPECIAL AREAS

The work of the Commissioner for the Special Areas is reviewed in a report lately issued by H M Stationery Office (Cmd 5896, 2*s*) There is much of note in the economic aspects of the report, as in the development of trading estates and the encouragement of new industries as a long term policy in view of the continuously presented "serious problem of a working population in excess of the present employment capacity in the Areas" Of special interest however, is the wide range of activity directed towards betterment of the public health

The financial position of local authorities within the Special Areas renders it difficult for them to embark unaided on necessary measures of improvement Generous assistance has been given in former years and arrears of development have to a large extent been met or are in process of being met, so that the commissioner is now able to report "when these outstanding schemes have been completed it is the opinion of the Ministry of Health that, taking a general view, the health services, whether provided by local authorities or voluntary organisations, will be substantially up to the level of the services in other parts of the country" Such assistance has been continued during the year under review, and it appears that particular attention has been given to hospital facilities, allowing for assistance to 7 schemes of local authorities and 8 schemes for voluntary hospitals Aid has also been given to the remedy of deficiencies at maternity and child welfare centres, to the provision of nursery schools to the encouragement of district nursing to the supply of medical comforts, to the subsidising of cheap milk schemes, to the organisation of cookery classes The main feature of financial assistance continues to be towards the improvement of sanitary services water-supply, sewerage and sewage disposal and closet conversion Grants were promised during the year towards 23 schemes for water supply, 61 sewerage schemes, and 11 schemes for closet conversion The total estimated cost of work of public utility for which grants were approved during the year was £1 420,211

It is observed that the activity of the commissioner has done much to mitigate the difficulties of local authorities in providing essential services and must prove of material benefit to the health of the inhabitants of the Special Areas

NOTES, COMMENTS, AND ABSTRACTS

PRINCIPLES OF MEDICAL RESEARCH
THE LIMITATIONS OF HISTOLOGY

By Lorenz S. Michaelis, M D. Berlin, L R.C P.E
CLINICAL ASSISTANT IN THE ORTHOPÆDIC DEPARTMENT, ST JOHN'S CLINIC, LONDON

In 1926 an extensive discussion took place at a meeting of the German Pathological Society on two rare but interesting diseases of the skeleton, osteitis fibrosa and Paget's disease This was followed by a flow of papers on this subject from nearly every country in the world, especially after, in the same year, the Viennese surgeon Mandl showed that by looking for and excising a tumour of the parathyroid glands osteitis fibrosa could at least be arrested and probably cured.

The volume of evidence that accumulated between 1926 and 1933 may be judged from the fact that in order to review this one theme in a comprehensive manner I had to read more than 2000 papers and references, 950 of which proved to contain essentials

Among the many general and special questions to be discussed, one in particular attracted my attention. Three opposing camps had formed among the pathologists of the world on the question whether the two diseases were (1) different in everything except that both were generalised diseases of the skeleton; (2) only different stages or forms, the one more acute, the other more chronic, of an identical underlying pathological condition; (3) not comparable, because only Paget's disease was a disease sui generis, while osteitis fibrosa was not a definite disease at all but something like a variation of rickets.

The main representatives of these camps in 1930 were three continental specialists in the histology of bone—Pommer, the grand old man of Austrian pathology; Schmorl, world-famous as an expert on the pathology of the spine; and Christeller, a leader of a modern school of thought who unfortunately died at an early age Schmorl stood for the first point of view, Christeller for the second, and Pommer for the third All three used the same histological techniques, and they did not differ in the description of what they actually saw under the microscope How then was it possible for them to arrive at so entirely different conclusions? This is not an isolated example: it is rather a test case, indicating one point in which lack of insight into the natural limits of one special sphere of research had led to a paradoxical situation

What are these limits? Has not histology, like all the new spheres of our search for facts —radiology as well as biochemistry, bacteriology not less than applied physics—gone from success to success since the times when Virchow built the foundations of medical morphology? How dare one talk of limits of a line of research which is still very active in conquering new land?

What the three experts on bone histology saw through their microscopes was that fibrous tissue of a certain type had replaced bone tissues; that was beyond dispute But there were differences as to the amount and the localisation of this replacement, and its combination with other changes. They saw many slides of the same part of one bone, of other parts of the same bone, of many parts of many bones of the same case, and they compared all this with the same vast material from another case In the course of many years they saw many such cases. Their minds started grouping what they saw according to analogies and differences, and unknown to themselves, this mental process of grouping superseded all other considerations Instead of some facts from outside histology influencing the formation of groups in their minds, opinion once formed became conviction, conviction became "fact" After having spent half a life time on acquiring what was essential in the way of experience, they took what they saw not merely for a sector of medical knowledge, but for the whole of it They accepted histology as the branch of research capable of leading to the identification of disease

At last Schmorl's conception was proved to be the right one, but was it proved because of histological facts? Certainly not. The discovery that osteitis fibrosa was always connected with a pathological condition of the parathyroids while Paget's disease was not decided the matter. Once more clinical observation, surgical enterprise, and some suspicions rather than facts arising from earlier findings provided the clue to the solution of a problem on which no special line of research had spent more efforts than histology

A new controversy arose over the question whether this "tumour" of the parathyroids was the cause or the consequence of the disturbance of metabolism of which the bone-changes are only one symptom Again histology tried her hand at deciding this matter from what the microscope revealed. But, although the question is still without a conclusive answer, this much can be said, that it is not to histology that we have to look for the last word

VALUE OF PATHOLOGICAL EVIDENCE

In this country there exists a characteristic reluctance to rely too much on the more static findings of morphology as opposed to the more dynamic ones of clinical and physiological observation But on the Continent and in the United States the tendency to make use of histological findings for the solution of problems beyond their reach is still to be found. On the other hand, those who observed the inadequate result of so much work have sometimes gone to the other extreme of doubting the value of histological evidence even where it was the best guide.

How can the limits of pathological histology be defined? One can state that histology alone is unable to provide sufficient evidence for or against the identification of diseases Experience goes far to prove that these limits are real. But are they permanent, or will it be possible for histology in the course of its future development to overcome them? If they were drawn only by technical difficulties, or due to the fact that the opportunities offered by histology are by no means exhausted, we would have to admit this possibility. But the reasons for the limitation are to be found in the very nature of the material that forms the subject of histology. What we can see on a slide are the responses of cells and tissues to ætiological factors The number of these factors is almost unlimited, but the variety of responses is not. The number of different changes a cell or a tissue can undergo is very small indeed. And further, each kind of cell or tissue has to rely on its own specific and limited choice of responses to the great variety of factors able to provoke a response

This in short is the law governing the visible effects which form the subject of histology. It is this basis of the restricted variety of responses which sets the

OTTAWA CIVIC HOSPITAL

real and permanent limits to its scope We find a parallel to it in the law of specific physiological responses of the organs of sense, formulated about a hundred years ago by Johannes von Mueller He stated that the response of the eye, for example, was and had to be always a visual one independent of the kind of stimulus which acted on it Just as it is thus impossible to infer from the physiological response of the eye the nature of the stimulus provoking it, it is impossible to draw from the morphological responses of less highly specialised cells definite conclusions as to their causes

The relation between the variety of ætiological factors and the comparatively poor variability of cell and tissue-reactions might be compared to the relation between our emotions and our facial expression of them We can all diagnose joy, anger, fear, or sorrow on each other's faces But in order to know the reasons which occasion them we have to know a good deal about both the character of the person and the special circumstances leading to the emotion It might be argued that not much is gained by the knowledge of this law But in our test case, would it not have been impossible for such an extended argument between three leading pathologists to arise at all, involving as it did an enormous amount of work and thought, had the existence of this law been recognised ? The knowledge that bone tissue is particularly limited in its variety of responses ought to have made it clear from the outset that it was useless to try to make the presence, amount, or features of fibrous tissue in bone the basis of conclusions for or against the identity of bone diseases We said that this test case was not an isolated one We need only mention the controversy raging for years between two other continental pathologists over the causation of gastritis and gastric ulcer Each one tried to prove his case with arguments based on histological findings It was another example of great efforts futile from the very start because of ignorance of the limiting law I hope to have shown that this law applies to pathological histology as a whole But histology is only one of the many auxiliary forces of research, the one in fact in which I have some experience I venture to think that other spheres of isolated research might suffer from similar uncertainties as to the limits of their real scope, and that an effort should be made to eliminate them Knowledge of its limits should prove as valuable in every field as knowledge of its possibilities Pathological histology, by confining itself to its limits, will gain more than it might lose Confidence in its achievements will grow in proportion as the histologist leaves the water-tight compartment into which some enthusiastic workers retired in order to accomplish independently the highest feats of research. Alone it will be in danger of being led ad absurdum, as a member of the corporate team of medical sciences it will give further proof that it is indispensable

SUMMARY

The number of possible causes of disease and their combinations is far greater than the number of different responses at the disposal of the tissues The histologist can describe the responses but he cannot with certainty draw conclusions as to their causes from this examination alone Workers in all branches of scientific research would be saved much wasted effort if the limitations of specialised studies were more clearly defined and more fully realised

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DRINK

Commissioner David Lamb, who is in charge of the intelligence department of the Salvation Army, on Jan 10 addressed a meeting of the Society for the Study of Inebriety, held in London The total number of convictions for drunkenness in England and Wales in 1936, he said, was 44,500, and this represented an increase of over 5 per cent on the previous year In 1913, however, the number of convictions was nearly 189,000, equal to 48 per 10,000 of population, whereas the corresponding 1936 figure was 11 Of the convictions in 1936, 38,000 related to males and only 6500 to females, and this was the more remarkable since the female population exceeded the male by 2 million He was inclined to think that the female was on the whole more faithful than the male, and that a finer loyalty to their ideals kept them on the straight and narrow way In his early days it used to be generally accepted that a drunken man could be saved, but seldom, if ever, a drunken woman The Salvation Army's experience in all parts of the world had given the lie to that notion It had also shown them how close was the alliance between drink and prostitution, without the stimulus of alcohol there would be an immense falling-off in the demand for loose women and brothels, and without drink inside such establishments "business" would languish

During the period 1883–1937 the number of public-houses in England and Wales had decreased by 27 per cent, the number of standard barrels of beer consumed by 42 per cent, the number of gallons of spirits consumed by 70 per cent, and convictions for drunkenness by over 75 per cent—from 174,000 to 44,000 Aggregate expenditure on drink had remained high, however, and the average proportion of income spent on drink was about the same as before the war Apart from the direct effect on industrial production, and therefore on the standard of life, the yearly cost of crime caused by drink, and of poverty due to drink, was estimated at nearly £50 million, and if some of it were capitalised the national asset would probably be £1000 million in a generation Drink was, in the last analysis, antisocial, and, social as drinking might be, it lay at the root of nine-tenths of poverty, squalor, vice, and crime At the same time it had to be recognised that the gin-palaces and beer houses, like many other evils, were largely a natural outgrowth of social conditions The Salvation Army believed that salvation was a sovereign remedy, that the expulsive power of a new affection worked wonders But they did not know, for example, why in one case the craving for drink seemed to disappear on what they called conversion, while in another case where the spiritual desires appeared equally sincere and the renunciation as whole hearted, the person had to continue to fight the craving

The Salvation Army considered suitable work, and plenty of it, as the cure, humanly speaking, for all ills, whether physical or economic change of environment and treatment—chiefly of diet—were also found effective Commissioner Lamb's experience in charge of the Army's land and industrial colony at Hadleigh, Essex, where most of the thousands of cases coming under his care and observation had been directly or indirectly attributable to drink taught two outstanding lessons apart from proving the supreme health giving and health restoring qualities of digging the soil The first was that drink is a secondary cause in social downfall, where it has often been regarded as a primary cause An investigation of 800 cases showed that 60 per cent originally classified as "drink cases" might have been more correctly defined as "social" since the originating cause lay in domestic troubles and business worries The second lesson was to regard the public-house as a possible means of grace because the men have to learn to resist the temptation to go for a drink

At the centres for inebriates the wholesome effect of the right environment was noticeable—regular occupa tion, suitable fellowship lectures, meetings, and recreative gatherings Treatment should not be such that a man was never subjected to temptation. A test of the work done in six years at the Salvation Army's island settlement in Sweden, which had *accommodation for 56 male patients*, showed that 60 per cent. definitely benefited and 39 per cent were cured. Diet everywhere was mainly fruitarian and vegetarian. Drink was stopped at once; there was no weaning. Women inebriates and drug-addicts had to have a milk diet, and those bordering on delirium tremens were generally kept on lemon juice and soda They were given a blanket-bath and sponged with hot water in which a little vinegar was placed; they had small mustard packs applied to the base of the spine and the back of the neck, and their feet were placed in hot mustard-and-water, with a cool bandage on the head.

In conclusion Commissioner Lamb said that the cause of temperance and total abstinence was undoubtedly making progress, and in the poorer areas gambling and betting were now probably greater curses than drink.

In the discussion which followed Mr. W. McAdam Eccles urged the importance of preventive measures by teaching children in their homes and at their schools. A vast amount of harm was done by what was called "moderate drinking" Road accidents, injuries, and fatalities would be halved if moderate drinking was stopped by drivers and pedestrians

Sir Robert Armstrong-Jones spoke of the difficulty of reconstructing, remaking, and reconditioning the drunkard, and mentioned that for some years he had as patient a woman who had more convictions for drunkenness (265) than any other woman in the Victorian era. He did not think that poverty was the cause of drunkenness or drinking. If religion could be taught more in the schools and homes there would be far less drinking.

THE GRADING OF NURSES

THE first report of the Interdepartmental Committee on Nursing is expected this month and the various interests concerned are alert to receive and examine new proposals The issue of a short book[1] by "the mouthpiece of a group of nurses," setting out ideas for a radical reorganisation of professional training and conditions of employment, is therefore well timed. A crisp title and a meaty extract from the preface quoted on the dust-cover stimulate an appetite which is not fully satisfied by the text Too much space is given to a recapitulation of familiar facts in the history of nursing, at the expense of argument on ways of grafting the suggested reforms on existing practice For example, the classification of patients in hospitals according to their needs of nursing services would be no easy task, since these needs must fluctuate with progress towards or away from good health. The services required are differentiated into sets of duties which, according to Miss Carter, could be spread among four different types of workers, only two of which need be nurses: (1) highly skilled nursing of patients acutely *ill*; (2) simple nursing procedures for chronic or convalescent patients; (3) duties such as those performed *by orderlies in military and naval hospitals*; (4) purely domestic work. The "new deal" is essentially the replacement of the existing general and subsidiary state registers by two only, for the enrolment of grade A and grade B nurses who would respectively undertake duties (1) and (2) in this classification. Some other proposals are that unregistered persons should be prohibited from the practice of nursing "habitually and for gain." Nurses' cooperations, which should be licensed, should be bound to inform each employer of the status (A or B) of the nurses sent out, and a salaried domiciliary service of nurses should be set up on terms that do not undercut private work. Nursing schools should be graded and (rather surprisingly) some hospitals recognised for the training of both A and B nurses, being staffed also by members of both grades.

After a rather superficial exposition of these and other ideas Miss Carter comments again on the traditional methods of training, and the psychological and financial obstacles to reform. She criticises present conditions and the disunity in the profession which prevents common action to amend them. She urges the need for the establishment of at least one subsidised experimental training school, associated with a group of hospitals not dependent on student labour and with the local public health department. She pleads for self-government of the profession, but visualises the ultimate replacement of the General Nursing Council by a Whitley council, representative of all kinds of nurses and of the employers and consumers of nursing services.

There is no lack of constructive suggestions in this book, though some of them may be unacceptable to the parties concerned and not easily workable in practice.

THE DRUG CALL

AT a meeting of the council of the Institute of Applied Pharmaceutics on Jan 13 Dr. F. W. Crossley-Holland, junior counsel to the institute, spoke of the increasing unwillingness of medical practitioners to grant interviews to pharmaceutical representatives. This was, he suggested, due to the greater number and the inferior types of visitor; and so effective has been the refusal that the mounting cost of successful interviews has dissuaded several firms from using the personal call as a method of propaganda. Yet, in Dr. Crossley-Holland's view, personal contact forms the ideal means of propaganda where the appeal of ethical products is concerned, granted ability on the part of the representative to discuss things in an intelligent and knowledgeable manner. There should be some easy and certain means of enabling the doctor to differentiate between caller and caller, and this, he said, was exactly what the machinery of the institute might ensure. Its membership would be a passport to the presence of medical men Later, he hoped, *holders of the institute's qualification would* gain admission to the Register of Medical Auxiliaries.

MENTAL DISEASE EXPLAINED

To persuade people out of the old prejudices about mental disorder and its treatment is one of the most important functions of mental hygiene propaganda. These prejudices centre in the "stigma" of being certified as insane, and the supposed incurability of mental illness. Straightforward explanation of the *real state of affairs* can do much to kill these chimeras. It is true that they may be irrational beliefs which cannot be wholly corrected by evidence, however forcible: but even though this may sometimes be the case, there can be no doubt as to the efficacy of honest statements about the similarity of mental to other forms of illness, the need for early treatment and the advantages of skilled care in a mental hospital, whether public or private. Such matters are simply and clearly expounded in a brochure by Dr. Horace Hill (The Public Attitude towards Mental Disease, and *Urgent Reasons for Early Treatment.* Salisbury, 1938. Pp. 36. 1*s*. 6*d*.) In appropriately simple form he restates for the public those general and practical issues which are concerned in ensuring adequate treatment for any relative who may become mentally ill.

VITAMIN-B COMPLEX: CORRIGENDUM.—In our report last week of a meeting of the Royal Society of Medicine's section of pharmacology and therapeutics the remarks made by Dr. C C. Ungley were wrongly attributed to his brother, Mr. H. G. Ungley. We also regret that, by an inadvertence for which our reporter was in no way responsible, a number of copies of THE LANCET gave the name of the last speaker incorrectly.

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[1] A New Deal for Nurses By G B Carter, B Sc, S R N., S C M, formerly supervising sister, outpatient midwifery, University College Hospital: lately organising secretary to the Midwives Institute London: Victor Gollancz 1939 Pp. 319 6*s*

ADDRESSES AND ORIGINAL ARTICLES

EFFECT OF WAR ON CIVILIAN POPULATIONS *

By Maurice Wright, O B E, M D Edin
PHYSICIAN TO THE TAVISTOCK CLINIC, LONDON

Is there really any such thing as the effect on the population as a whole which can be put in clear terms? A population, however dense or large, is made up of individuals, and no two individuals react exactly in the same way to the same situation

Take first the smallest group—the family Under war conditions every member of the family will react differently according to age sex, position in the family, and so on If this is true of the smallest unit, the family, then it is also true of the larger groups which make up the population The reaction will be different in urban and rural areas, different according to the density of the population and the real or imaginary threat to life All we can really say about the reaction of a civilian population to war conditions is that in such areas the overt behaviour of a large number of the population seemed to give evidence of such and such an alteration in mood and behaviour

EXPERIENCE IN 1914–18

I do not think that the sense of anxiety and apprehension was ever so widely spread as it was at the very outbreak of war in 1914 It was apprehension rather than fear—largely, I think, because war was something unknown and no one in the civilian population knew what modern war would be like Imagination therefore could run riot, unchecked by knowledge or experience It was for this reason probably that it was in the early days of the war that rumour played so large a part in adding to the general sense of apprehension Because of the absence of the critical faculty, which must be based upon knowledge of facts, the general mass of the population was perhaps more suggestible than at any time during the war Take for instance the passage of enormous numbers of Russian troops through London at dead of night, which was accepted as a fact by the mass of the population Spies were seen to be signalling at night to German submarines by thousands of people all round the coast The Prime Minister was in the pay of the Germans The myth of the Angels of Mons was widely accepted In the early days and the early weeks of the war no rumour was too fantastic to be accepted

This condition of most of us, then, was not so much that of acute anxiety as of apprehension Anxiety and fear began to appear later when the facts and realities of war began to emerge

Actually, the first cases that I saw of really acute anxiety were cases where the threat was not to life but to economic security As you will remember, a moratorium was declared on the outbreak of war, the Stock Exchange was closed and no one could foresee what would happen to the whole economic structure of the kingdom during the first months of war I saw personally cases of complete nervous and even mental breakdown amongst bankers, stock brokers, and financiers It was not the threat to life, it was the threat to economic security which caused the breakdown, and I think this must be borne in mind when thinking of the reaction of the civilian population to war The loss of property, the threat to economic security, is vastly more important to many than the threat to life I am afraid it is a fact that many more will expose themselves to danger to save property than to save another life

After the first few weeks of war, during which apprehension and increased suggestibility were perhaps the main features, new attitudes began to emerge I am no politician and do not attempt to justify or deny the reality behind these things, but as the facts of war, the realities of the situation became clearer, then the idea—the Ideal, if you like—which had brought us into war became clearer to the masses of the population This was the reason for the wave of enthusiasm which swept through the country—enthusiasm to serve to make any sacrifice of life or property or of the lives of those nearest and dearest By the masses of the people the war was felt to be a just one terrible but inevitable During the four years of war the Ideal may have become somewhat tarnished at times, but I think it was there throughout, and enabled the mass of the people to bear the very great sacrifices and hardships without loss of morale or sense of defeat

MENTAL DEFENCES AGAINST WAR ANXIETY

Although manifest anxiety seemed to lessen in the general population as they accepted and adjusted themselves to the realities of the war, it is important to notice that the anxiety was still there, although at this stage it had been driven underground, or suppressed, as we would say in our psychological jargon Individuals with suppressed anxiety, in direct ratio to the amount of suppressed anxiety, automatically adopt various changes in outlook and attitude which act as "mental defences" against its return into consciousness As the amount of suppressed anxiety increases, these mental defences become more evident As Dr Ernest Jones has stated (in "Psycho Analysis and the War Neuroses") the mental defences against war anxiety, the process of readaptation in regard to war, consists of two distinct sides on one hand an extensive release of previously tabooed tendencies—such as cruelty, licence in sexual morality, drink, spending of money—and on the other hand the acquisition of strict discipline and control along lines widely different from those of peace time

Both these aspects of "mental defence" or readaptation were evident in the last war in the civilian population as well as in the fighting forces, and they will with certainty be evident in any future war To my mind they are both defences against the overwhelming anxiety which might otherwise be felt

OVERTHROW OF TABOOS

To take the first aspect of these defences—the release of normally tabooed tendencies I wonder if any of you remember the release which was often manifest especially in the early days of the war of cruel and sadistic thought and speech in normally gentle people?

I remember very well dining with a particular friend at his house early on in the war The ladies present were all doctors wives, intelligent cultured folk, without you would think a grain of hatred or cruelty in their disposition, and yet during dinner the main topic of conversation among the women—not the men—was the planning of tortures or punishments they would like to see perpetrated on German

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* Abridged from a lecture delivered at the Tavistock Clinic on Jan 12 1939 introducing a course entitled Neuroses in Wartime

prisoners. Belgian atrocities, true or false, were then fresh in our minds, but I have never seen such an appalling release of primitive hate, cruelty, and sadism as was evinced by those normally gentle folk. This was not an isolated instance The release of sadism was evident in its most primitive form in the press and in the conversation of ordinary people—most evident, I think, in women, in whom the related aggressive instincts are more deeply repressed in normal times and situations.

In the last war—in fact, I think in all wars—there was plenty of evidence that there is a lowering of the accepted standards of sexual morality in both sexes, and here again I believe that in the majority of cases the free sexual indulgence was not because of the increased opportunity so often produced by war conditions, but a form of defence against anxiety, a narcotic if you like. Most of you will have seen, as I saw, many examples of young married women whose reaction to the death of their husbands was to throw themselves into a frenzy of sensual and sexual indulgence. In most of them, of course, since this reaction can only dull the pain of bereavement and anxiety, this was a temporary phase—a narcotic, as was said. The same applies to drink and extravagance All of us know many chronic alcoholics in whom the beginning of the condition can be attributed to the circumstances of war. "Eat, drink and be merry, for tomorrow we die" must be and will be, I think, the philosophy of some of the civilian population in war conditions. I am sure however that it will only be a small section of the general population who will take this road; and many—even if they take it for a short time—will retrace their steps and, as a defence against their anxiety, get their feet firmly on the harder but better road of discipline.

SELF-CONTROL

And now about this second road—the acquisition of a strict discipline and self-control along lines widely different from those of peace-time. This, of course, is evident enough in the fighting forces, where the strictest of discipline is necessary under war conditions, not only for efficiency but also in actual battle, as a defence against anxiety and the spread of panic fear and all that that entails In the last war it was also true of the civilian populations and it will be increasingly necessary if we have to face another war, perhaps directed in the main against the civilian population Last time we saw on all sides the self-imposition of this discipline in nursing services, ambulance services, voluntary policemen, firemen, munition-workers, voluntary organisations of all kinds The people in these services were drawn from all classes of society, and all of them accepted discipline, self-control, and long hours of work quite alien to their peace-time occupations For many there was no question of economic gain, but many found in the discipline and the work, the solution—or at any rate a partial solution—of their own personal problem of finding a defence against anxiety. With this self-imposed discipline there came a building-up of personal ideals, however hard and monotonous the work; this is in contrast to the destruction of personal ideals and self-esteem which is the result of taking the other road, the flight into sensuality.

THE LONDON AIR-RAIDS OF THE LATE WAR

Now to pass on to the effect of the actual air-raids on the civilian population. I think I was in London for the vast majority of the air-raids and in most of them I was in a hutment hospital for shell-shocked officers in Kensington. The raids were often unpleasant and definitely frightening, not only because of the noise—the most frightening thing unless you are used to it—but also because there was a real sense of danger. There were shell fragments falling and breaking slates overhead, nose caps falling near-by, and bombs exploding at no great distance The patients were the worst cases of shell-shock and were all in single rooms. Nurses went from room to room trying to keep them steady, most of them young and inexperienced V.A.D.'s, but I never saw a sign of hysteria or panic amongst the staff, although they were surrounded by panic and hysteria amongst the patients

This is, I think, a fair sample of how a large section of the civilian population reacted when they were under discipline, had definite work to do, and were living ordered lives The raids themselves could be borne well, but after a series of raids there would be a proportion of breakdowns.

In the crowded districts of the East End of London, where bombing was more severe, there was panic and some hysteria—never very serious but bad enough. Here there were different standards of self discipline and self-control, even in peace-time, and little opportunity for flight. I do not believe, as some do, that every alien is necessarily a coward. But aliens in any country do not stand war conditions so well as nationals, just because they are aliens For the alien there is less motive for restraining the free expression of the self-preserving instinct.

One thing is, I think, significant. Although there was some panic and hysteria in certain areas, I do not think the civilian hospitals had a great many cases of psychiatric casualties After the war all of us saw many cases of civilians who had been gradually breaking down as a result of the war. Raids, personal anxieties, economic stress, malnutrition, and over work—all left their mark on the population for a generation. Of one thing we can be sure, even from our experience of the last war—however powerful our defences, however well-organised the nation, war will take a terrible toll of civilian population, not only in physical injuries, but through the stress of long-continued fear and anxiety affecting not only the mind and feelings, but every organ and function of the body.

EFFECTS OF INTENSIVE ATTACK

It is to my mind impossible to forecast the effect of a war in which the civilian population in large cities like London was subjected to incessant aerial bombardment, with appalling destruction of life and property. I do not believe we can learn all that we need from the reports at present available of the effect of aerial bombardment in places like Barcelona or Madrid or a Chinese town. We are told that in Barcelona the population has been amazingly tolerant of air-raids and accepts them with amazing courage and fortitude We are told that this is the case because the Spanish people are more callous than we are to scenes of carnage and destruction, and that the courage and fortitude of the population is due to the fact that they have implicit faith in the justice of the cause for which they are fighting, and in their government, and feel that everything is being done that can be done.

No single observer can see more than a single section of the community, and so much that I have heard and read is so often politically biased on one side or the other that I doubt very much whether we have got in any way a true picture of the effect of war on the civilian population in either Spain or China. One single and extremely significant fact been told us on good authority and must be recognised —the admissions to mental hospitals in Catalonia have trebled since the outbreak of the war in Spain

On the one hand, there can be heard the voice of those who profess to believe, from a study of our history, that widespread psychological breakdown is unlikely On the other, it has been suggested that because we are a capitalist country with class hatred and a government swayed by vested interests, our civilian population will get out of hand under the stress of modern war, and there will be mass hysteria, mass panic, and a complete breakdown of our civilisation—a grim picture, and to my mind extremely unlike the English people as I know them I can quite conceive that there will be panic and hysteria But both panic and the hysteria seen in groups or crowds are short-lived reactions, as we saw in the last war Under terrific bombardment whole battalions succumbed to panic and ran back, but in almost every case they were rallied behind the lines and went forward again steadily into the fighting line free from panic I believe this will hold good with the civilian population There will be many who will panic, many who will have hysteria, but the majority of them will recover and carry on

It may be helpful to define panic—it is an unusual fear reaction brought about by any intense and sudden stimulus without definite relation to the danger of the situation It may result from a sudden noise, sudden darkness, an intense light, for example All action is either completely paralysed, or more commonly, purposeless action may occur, such as running into danger instead of away from it

The best example of panic I have ever seen was in an Australian soldier who had come straight to London from Gallipoli He had never suffered from shell shock, but had emerged from the Piccadilly tube into one of the thickest of London fogs, when I met him he was the most complete picture of panic I have ever seen He was quietened by a drink and some explanation of the unnatural darkness

APATHY

There is another reaction of the civil population to war that may be very terrible—not anxiety, not panic, but the negation of anxiety and the negation of panic, perhaps the exhaustion of the faculty to feel anxiety This is apathy, the stunned apathy which one has read of in populations, particularly when there has been malnutrition, where the stress of bombardment, carnage and destruction have been very great This is not a type of panic, but something worse, a deadening of all emotional response, of grief, fear, or joy I hope we may never see it, because descriptions of its occurrence in large sections of a community are very terrible

MAINTENANCE OF MORALE

What can be done to help the population to keep their morale under stress of war? What, at any rate, are the ideals to be aimed at? Evidence, clear evidence, must be given to the mass of the civil population that there is preparedness, that there is organisation, and every man and woman, especially in urban areas, must have a job to do and know where and how to do it There must be evidence of leadership, not for efficiency only but—if I may stress the main point I am trying to make—as a defence against anxiety At the beginning of this lecture I spoke of the evidence of mass suggestibility and tried to show the relation between increased suggestibility and the absence of knowledge of facts, and, therefore of the critical faculty For this reason I believe it to be essential that the government of this country should, as far as possible, and as early as possible, let facts be known This, to my mind, is the best and perhaps the only defence against morbid suggestibility in the masses, against scaremongering and deliberate misstatement either by the press or by orators, both at street corners or in high places The acceptance of a suggestion is the assimilation of a statement without criticism without criticism because the persons making this statement are held to be an authority, who is to be trusted implicitly It is, therefore, essential for the civil population, not so much that leaders should be trusted, as they will be, but that these leaders should be worthy of trust

I have said very little about mass panic and mass hysteria because I think the difference is quantitive and not qualititive In both these conditions, almost the only difference is that a number of people react in the same way to the same stimulus I do not think there is any evidence that there is a special form of panic or hysteria which occurs only in a group or a crowd On the other hand, we must bear in mind that when there is common danger people tend to get together into groups, whose reaction will depend very often on the presence of some one person in the group, who, for good or evil, rightly or wrongly, is accepted as having authority

After the Napoleonic wars the people of England were at a very low ebb, through want, unemployment, and hardship of all kinds In order to try to lull some of the discontented the government ordered the building of more churches, believing or hoping, I suppose, that if the people were encouraged to have faith in a future happiness they might be more tolerant of their present sufferings I am not urging this as a government measure in time of war I do, however, seriously wonder whether if we have to experience the horrors of a war on the civil population, the return of some religious belief may not prove to be for many people one of the best defences against anxiety It has happened before in the history of the world, and may happen again May I quote from an article by Henry Bergson on the meaning of war, written during the last war "The moral energy of nations as of individuals, is only sustained by an ideal higher than themselves and stronger than themselves to which they may cling firmly when they feel their courage wane" He goes on to speak of Germany then—as I think he might write now of the totalitarian states—"Her energy comes from her pride Her moral force is only the confidence which her material force inspires in her, and this means that in this respect she is living on reserves without means of replenishment"

THE BASIC PROBLEM

Throughout this paper I must seem to have been whipping the same horse—anxiety and the defences against anxiety I have done this because, in my opinion this is the main, even perhaps the only, basic problem when we try to think of the effect of war on the civilian population

During war there is objective cause for fear, there is the risk of loss of life, of property and of the lives of others, but as war goes on, real anxiety becomes transformed into neurotic anxiety, anxiety which persists in both mental and bodily disturbance long after the objective cause for anxiety has been removed, temporarily or permanently

I believe most firmly that the effect of air-bombardment will depend not so much on the intensity as on the frequency of the raids It is continued and not intermittent stress which does the most severe damage to both mind and body

Perhaps the supreme test of stability of mind and body is the speed with which complete recovery takes place after the objective cause for anxiety has been removed. There was plenty of evidence of this during the last war. Battalions remained more stable if they could be given frequent, but not too long, periods of rest from the front lines

Of course, everyone in the civilian population is not equally anxious. There are, undoubtedly, some types which are much more tolerant of stress, are more phlegmatic, and less imaginative I am not speaking here of bravery or cowardice, which does not depend on whether anxiety is or is not experienced In my opinion, based upon four years' work with shell-shock patients, not one of us, however phlegmatic, is immune from anxiety. It is just a question of dose If stress is sufficiently prolonged the most phlegmatic may break down, and when they do the condition is often more severe and lasting than when some tolerance of anxiety has been previously acquired.

If the immediate effects of anxiety are severe, the remote effects on the civilian population will be equally severe We are only beginning to realise the effect of neurotic anxiety on every function of the body, the effect of real anxiety will be just as serious. As the result of endocrine and sympathetic disturbances, no system is immune—cardiovascular, digestive, or respiratory

Although I am not able to give you, at the moment, really satisfactory proof, excluding incurable shell-shock cases and the psychoses where the connexion is obvious, I believe that many of the cases we have all seen and known of apparently healthy men cut off in their early forties by cardiac or coronary disease, were due, and directly due, to the stress of the war years All of us could give many other instances of possible late effects on other functions, instances not perhaps capable of proof, but to my mind as certainly due to the remote effects of the war years as that the sun gets up.

ANGER

When the destruction of life and property is particularly cruel, insensate, and spares no one, there is one other reaction of the civilian population—blind, unreasoning anger Even in normal life, anger releases for the time being the tension of normal anxiety. Under war conditions it may be directed against the authority of the government, or more probably against all or any who may, however unjustly, be suspected of sympathies or any racial affinity with the enemy. Bearing in mind the release of the taboo on cruelty and sadism of which I spoke earlier on, this anger may prove a very terrible thing in any population, especially when it is not the result of personal anxiety but of ocular evidence of carnage and destruction I am afraid it leads to the blind demand of "an eye for an eye and a tooth for a tooth."

WOMEN AND CHILDREN

Two other points Will women stand war conditions as well as men? My own opinion and my own experience is that they will stand the stress of danger as well, if not better, than men but that we must give them an outlet for their maternal protective instinct. To many women their menfolk are their children, and they will stand the stress better if they are not separated from them. Evacuation may be, probably must be, necessary, but I should not like to have the handling of a big camp of women whose menfolk, fifty miles away, were under daily bombardment.

Secondly, what is the effect of war anxiety on children? Curiously enough, there is good evidence that they are more upset, at least at first, by the separation from, or by the emotional disturbance of, their parents and family, than they are by the actual war situations Children taken into hospitals are as a rule more perturbed about the absence of the mother they know, than by the operative procedures of which they know very little As in hospitals, much may be done, by sympathetic interest, to quell their immediate fears It is still more important that children, if evacuated, should remain in groups familiar to them—such as school classes—and under familiar authority. In such circumstances experience shows that children may show few signs of anxiety.

* * *

This is a grim subject; and it gets grimmer the more you think about it But much is speculative and, frankly, I do not think we can know, perhaps mercifully, what the effect would be of a war directed primarily against the civilian population I sincerely believe that if rulers of any country who consider war a legitimate means of satisfying their desires could realise to the full what are the immediate and remote results of anxiety and fear on a civilian population, they would hold their hands However great the maiming and loss of life, in the end it will be less disastrous than the result of anxiety, if this is severe and prolonged Not only will there be countless damaged lives, individuals cut off from full happiness and enjoyment, but there will be a heritage which can, I believe, affect generations to come.

HORMONAL RELATIONSHIP BETWEEN THE OVARY AND THE ADRENAL GLAND

AND ITS SIGNIFICANCE IN THE ÆTIOLOGY OF MAMMARY CANCER

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AND

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In previous publications we have recorded the fact that œstrogenic hormones affect not only the sex organs but also almost the entire endocrine system (Cramer and Horning 1936a and b). Some endocrine organs show a hypertrophy—e.g, the islets of Langerhans and particularly the anterior lobe of the pituitary, where there is also an intense hyperæmia leading sometimes to hæmorrhages and a massive accumulation of colloid. The opposite effect is seen in the thyroid, which is small and in a resting condition, and particularly in the adrenal in, which a definite process of degeneration sets in, called by us the "brown degeneration" (Cramer and Horning 1937). All these changes appear before the onset of cancer in the mamma

The brown degeneration of the adrenals is of special significance in connexion with the problem of carcinogenesis in the mamma. This derives from the fact that this degeneration can be induced by œstrinisation in ordinary mice of mixed strains in which cancer of the mamma develops in a small number of the treated animals, while in mice of the inbred R III strain, with a high incidence of mammary cancer in the females, the same degenerative change sets in spontaneously even if no excessive œstrin is supplied and before the appearance of malignancy in the mamma. The spontaneous occurrence of the brown degeneration in the R III strain has been confirmed by Dobrovolskaia-Zawadskaia and Zephiroff (1938), who also recorded the absence of this phenomenon in other genetically pure strains free from spontaneous mammary cancer. In these latter strains the brown degeneration failed to appear, even when the mice developed malignant tumours in organs other than the mamma in response to such carcinogenic agents as radon and dibenzanthracene. We have recently examined the adrenals of 5 female and 4 male mice aged ten months or more, belonging to another genetically pure strain with a high incidence of mammary cancer, and found the brown degeneration present in every animal.

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[*] The work was begun during a tenure of a Beit memorial fellowship for medical research

These facts indicate that in these two strains with a high incidence of mammary cancer there is a disturbance in the functional relationship between the ovary and the adrenal and suggest that this abnormality is a visible manifestation of the vague term "susceptibility to mammary cancer." It is possible, therefore, that this disturbance is an ætiological factor in the development of cancer in the mamma. To investigate this problem we have studied the reaction of adrenalectomised animals to the œstrogenic hormone of the ovary in mice of mixed strains and in mice of the inbred strain R III with a high incidence of mammary cancer.

Experiments

Adrenalectomy was performed in two stages with an interval varying from ten to fourteen days. Either ether or, less frequently, Avertin were used as an anæsthetic. The glands were removed by the dorsal route. The operative mortality was low—i e, death soon after the operation with obvious signs of failure in the operative technique, such as hæmorrhage in the abdomen, septic infections, and pneumonia. Such animals were excluded from the protocols. In all the animals which died or were killed a search was made at the upper pole of the kidneys for the presence of adrenal tissue. This is difficult when advanced post mortem changes have set in. In a small number of animals cortical tissue was found in the form of a tiny round nodule enclosed in a capsule. These were, therefore, accessory cortical adenomas which may have been formed by hypertrophy from adrenal cortical rests after the glands themselves had been removed. These animals reacted to œstrinisation in the same way as normal mice with their adrenals intact. They were accordingly recorded in a separate group as containing demonstrable accessory cortical tissue. This must not be taken to mean that such tissue may not have been present elsewhere in the body when none was found at the upper pole of the kidneys. It only means that we did not demonstrate its existence. Œstrinisation was carried out by painting twice weekly the dorsal skin with a 0 01 per cent solution in chloroform of a crystalline preparation of œstrin (Dihydroprogynon) for the generous supply of which we are indebted to Dr Neumann of Scherings Ltd.

EFFECTS OF ŒSTRIN IN ADRENALECTOMISED MICE

When œstrinisation and adrenalectomy were carried out simultaneously there was among the male mice a great increase in the already high mortality produced by adrenalectomy alone. The reason for this curious phenomenon, which threatened to make further progress along this line difficult, is still under investigation. The difficulty could be got over when it was found that a course of œstrinisation preliminary to adrenalectomy greatly diminished the mortality. We therefore carried out two series of experiments with mice of mixed strains:—

(1) *Adrenalectomy in male and female mice.* This series served as the control.

(2) *Adrenalectomy in male and female mice* which had been subjected for periods varying from three to six months to œstrinisation; this was continued after the operation.

For purposes of comparison the adrenalectomised mice were grouped according to their survival in three groups:—

(1) Mice which died within the first fifteen days after the removal of the second adrenal;
(2) Mice which died between the fifteenth and thirtieth days after the second adrenalectomy; and
(3) Mice which survived the first month.

Most of the mice of the third group lived for several months, sometimes for ten months, and some of these were killed at various periods for the histological examination of the mamma and the endocrine organs. A few died from intercurrent diseases.

TABLE I

—	Adrenalectomy alone			Adrenalectomy after œstrinisation		
	M	F	Both sexes	M	F	Both sexes
Died 1–14th day	2	3	5	2	1	3
„ 15–30th „	2	4	6	2	1	3
Survived	4	9	13	15	11	26
Total	8	16	24	19	13	32
Survival (per cent.)	50	56	—	79	85	—

The results of this experiment are given in table I and show a marked difference between the two groups. In the non-œstrinised control mice 50 per cent. of the males and 56 per cent. of the females survived the first month, whereas in the œstrinised mice the survivals amounted to 79 per cent. in the males and 85 per cent. in the females. There is a difference between the two sexes in so far as the females showed a better survival than the males in both groups. Accessory cortical tissue visible to the naked eye at the upper pole of the kidney was found in 2 males of the control group, but not in the œstrinised group. Both these mice survived; they are not included in table I.

These results lead to the conclusion that in the œstrinised organism the endocrine balance has been altered in such a way as to make those endocrine functions of the adrenals which are essential to life supererogatory; in other words, an excessive supply of the œstrogenic ovarian hormone protects against the loss of the adrenal hormone essential to life.

There is evidence that the converse also holds good—namely, that in the absence of the adrenals the effects of an excessive supply of the œstrogenic hormone are diminished. This manifests itself already in the living animals. The loss of weight, arrest of growth, and emaciation produced in the intact animals by prolonged œstrinisation are not nearly so obvious in the adrenalectomised animals and may even be absent. An examination of the organs chiefly affected by prolonged œstrinisation in an intact animal—namely, the testis and the thymus, which undergo atrophy, and the pituitary and the mamma which show a marked hypertrophy—reveals further striking differences. These organs were less affected—and sometimes much less so—in adrenalectomised animals than in intact animals

The different reaction to œstrinisation between intact and adrenalectomised animals is seen very clearly in the testis, which in intact œstrinised mice undergoes atrophy fairly rapidly and regularly. After prolonged œstrinisation this atrophy is so marked that it is sometimes necessary to search carefully for the organ Its weight, which in a normal mouse amounts to 70–80 mg, falls after six months' œstrinisation to 15 mg. and even to 6 mg Histologically there is complete cessation of spermatogenesis. In adrenalectomised mice the diminution in size after œstrinisation is not nearly so obvious and does not exceed as a rule half its normal weight. Spermatogenesis is not arrested. There is a striking similarity between the protection of the testis against the atrophy induced by œstrinisation which results from the absence of the hormonal functions of the adrenal gland, and the protection resulting from the *continued injection of its physiological antagonist*, the thyrotropic hormone of the anterior-pituitary lobe (Cramer and Horning 1938) This resistance of the testis of adrenalectomised mice to the effects of œstrinisation is illustrated in figs 1, 7, and 8.

The thymus, which in œstrinised intact animals is small or atrophied, persists in œstrinised adrenalectomised animals In many animals it was enlarged, and in one mouse there was even a thymus tumour. In this connexion we wish to record that during the past year we have found neoplasms of the thymus in 3 other non-adrenalectomised mice in which a disturbance of the hormonal balance had been induced by prolonged treatment with different hormone preparations. The lymph-glands in the groin, embedded in mammary tissue, which were taken as a test object, are also often greatly enlarged. In a few cases we have seen enlargement also in the retroperitoneal glands, and in one mouse there was a massive enlargement of all the lymph-glands. Since such a condition of lymphomatosis occurs sometimes spontaneously in our laboratory stock of mice, no significance can be attached to it at present.

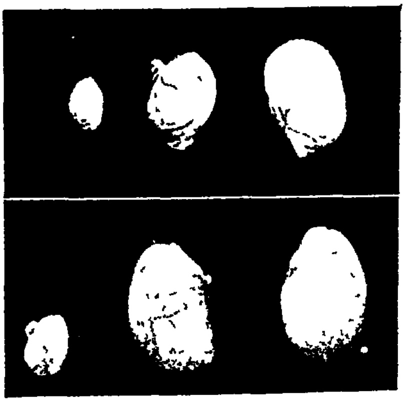

FIG. 1—Comparative sizes of testes in two groups of three mice each illustrating the protection against the atrophic effect of œstrinisation produced by (*a*) adrenalectomy (upper row); (*b*) injection of anterior-pituitary lobe hormone (thyrotropic hormone). In each row the large testis on the right side is that of a normal mouse, the atrophied testis on the left side that of an œstrinised mouse, the testis in the middle that of a mouse œstrinised for the same length of time and adrenalectomised (upper row) or thyrotropinised (lower row).

The difference between intact mice and adrenalectomised mice in the reaction of the thymus and the testis to œstrinisation was very evident in this experimental series, ev although the animals had been subjected, befo adrenalectomy, to a course of œstrinisation lasti from three to six months, during which a considerab degree of atrophy of these organs must have tak place. It seems possible that in the later course œstrinisation after adrenalectomy these organs m actually have undergone some restitution, but tl point will have to be examined by further experiment

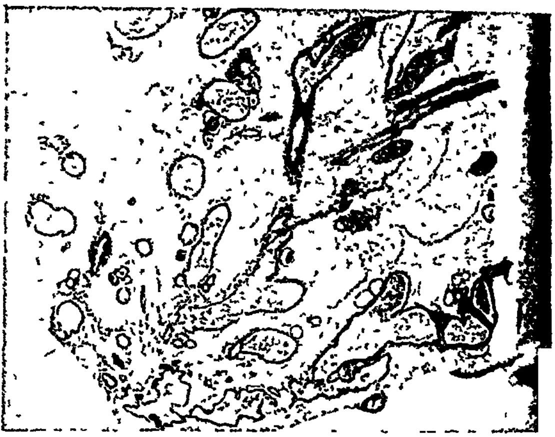

FIG. 2—Mamma of female mouse No 1289, œstrinised 7 months

A comparison between the effects on the pituita and those on the mamma is more difficult in tl experimental series for a variety of reasons. Firstl these organs had already undergone a considerab degree of hyperplasia during the preliminary cour of œstrinisation, when the adrenals were presen Secondly, in individual mice of mixed strains the organs show considerable variations in the degr of their reaction to œstrinisation; and thirdly, tl degree of differences in these organs is more difficu to assess, for it depends on a comparison of a numb of different histological features for each gland But none of the adrenalectomised œstrinised mic showed in the anterior lobe of the pituitary th advanced degree of enlargement, hyperæmia, an loss of acidophil cells which are found in a numbe of the intact œstrinised animals Similarly, th mammary gland of the adrenalectomised œstrinised animals never showed such an advanced degree o development and of secretory activity as is seen many œstrinised intact animals

TABLE II

No of mouse	Weight (g)	Thymus	Mamma	No of mouse	Weight (g)	Thymus	Mamm
ADRENALECTOMISED MICE				INTACT MICE			
1286	27	+++	+	1287	22	+	++
1288	26	+++	++	1289	19	+	++
1265	30	+++	±	1201	18	+	Carc nom

Much more striking differences are obtained if the *preliminary course of œstrinisation is omitted*—i e. if the adrenals are removed at the beginning of œstrinisation For reasons given above, such experiments are best carried out with female mice. The results of such an experiment with *two groups* of 3 mice each are summarised in table II. The period of œstrinisation lasted for seven months The comparative size of the thymus is given approximately

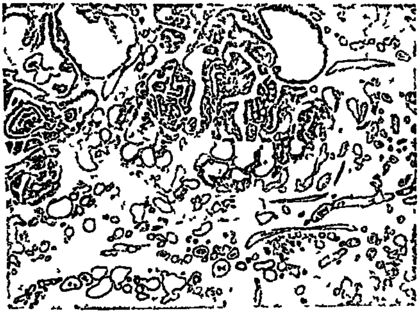

FIG 4—Mamma of male mouse No 1262 of strain R III, adrenalectomised and œstrinised for 5 months Accessory cortical tissue was present in this mouse The mamma shows an early carcinoma A palpable carcinoma was present in another mamma

by the number of plus signs The relative development and secretory activity of the mamma is similarly indicated, the sign ± signifying that the gland is undergoing involution

The microscopical appearances of the mamma of one mouse of each group (Nos 1288 and 1289) are shown in figs 2 and 3 In the intact œstrinised mice (No 1289) the ducts and acini are filled with secretion, the cells are large, cubical and rich in cytoplasm (fig 2) In the adrenalectomised mice œstrinised for the same length of time (No 1288) the mamma is poorly developed, the cells are small and poor in cytoplasm, and there is no evidence of secretory activity (fig 3) The development of a palpable carcinoma in the mamma of an intact mouse (No 1291) shows that the mammæ must have been very fully developed This was confirmed by examination of another mamma of this animal Since in mice of mixed strains the development of cancer of the mamma in response to œstrinisation occurs irregularly, and the number of mice used in this experiment is small, no conclusions can be drawn from this experiment alone concerning the effect of adrenalectomy on carcinogenesis in the mamma This question which was examined experimentally in another series with mice of the R III strain, will be discussed subsequently in this paper

EFFECTS OF ADRENALECTOMY ALONE

An explanation of the results presented so far was obtained by a study of the effects of adrenalectomy alone It was found, rather unexpectedly, that adrenalectomy itself—i e, without œstrinisation—also produces definite changes in the mamma and in the thymus If the mice survive sufficiently long, the thymus persists and is almost always enlarged, and the lymph glands, as judged by the glands in the groin and the retroperitoneal glands, are also frequently enlarged In one animal all the lymphoid tissue was greatly enlarged, presenting the condition of lymphomatosis observed in an œstrinised and adrenalectomised mouse and referred to above These findings demonstrate the existence of an endocrine control of the thymus and perhaps also of the lymphoid tissue They also indicate the possibility of endocrine factors in the ætiology of neoplasms of the thymus, in view of the occurrence of thymus tumours in four mice in which a disturbance of the endocrine balance had been brought about by various means The investigation of this new problem is now under way The mammary gland tissue is devoid of secretory activity and in some animals appears to be in process of involution There are also changes in the pituitary which, like the changes in the testis, the mamma, and the thymus, are in the direction opposite to those produced by the œstrogenic hormone of the ovary and similar to those following injections of the thyrotropic hormone

Since the effects of the œstrogenic ovarian hormone and those of adrenalectomy oppose each other, the important conclusion follows that one—or more—of the hormonal functions of the adrenal gland acts synergically with that of the œstrogenic ovarian hormone As a result the effects of the ovarian œstrogenic hormone are greatly diminished and may be arrested when the adrenal glands are absent

EXPERIMENTS ON INBRED HIGH CANCER STRAIN

To investigate how adrenalectomy affects the experimental development of mammary cancer by the ovarian œstrogenic hormone, it was necessary, for reasons given above, to carry out observations on male mice of the high-cancer strain R III They react in all respects more rapidly and more uniformly to œstrinisation As regards carcinogenesis, almost all the males begin to develop mammary cancer after seven months, and before the sixth month has elapsed cancer has appeared in most of them It is rare to find a male mouse of this

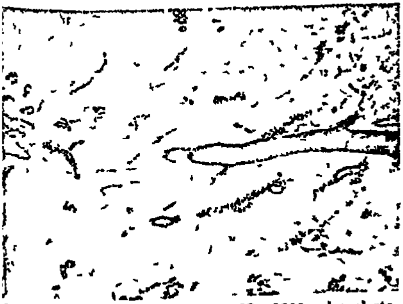

FIG 3—Mamma of female mouse No 1288, adrenalectomised and œstrinised for 7 months.

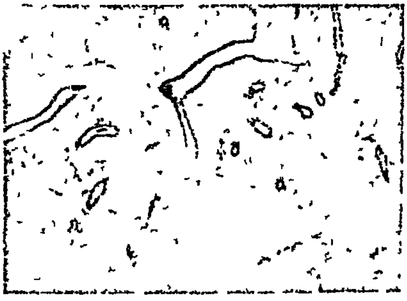

FIG 5—Mamma of male mouse No 1310 of strain R III, adrenalectomised and œstrinised for 7½ months

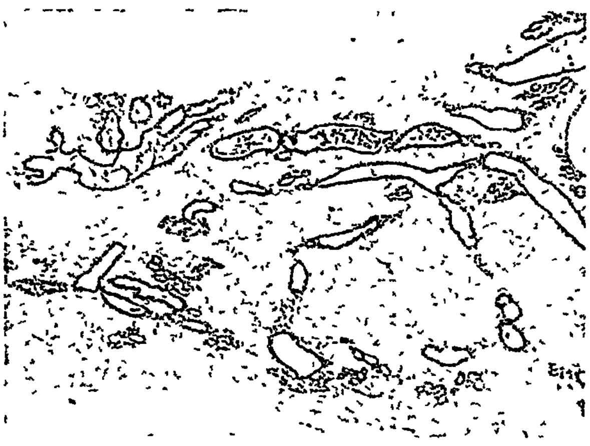

FIG 6—Mamma of intact male mouse No 1290 of strain R III, œstrinised for 7½ months

strain which remains free from mammary cancer after eight months' œstrinisation. It is, therefore, *not possible, when working with this strain,* to subject the animals to a prolonged course of œstrinisation preliminary to adrenalectomy, as was done in the first series, if one uses this strain to study the effect of adrenalectomy on carcinogenesis in the mamma For this reason the preliminary period of œstrinisation had to be shortened to a few weeks. This reduces the number of animals surviving adrenalectomy. We have succeeded in keeping alive 8 male mice of the R III strain, in which adrenalectomy was performed after a short preliminary period of œstrinisation. In 3 mice of this group accessory cortical tissue was found at autopsy at the upper pole of the kidney. In table III in which the effects of œstrinisation are summarised, the mice with and without demonstrable accessory cortical tissue are grouped separately.

TABLE III—MALES OF R. III STRAIN

No of mouse	Total period of œstrinisation (months)	Adrenalectomy after (weeks)	Carcinogenesis in mamma	Testis: degree of atrophy	Pituitary changes	Accessory cortical tissue demonstrated
1262	4	6	+	+++	++	+
1230	3½	6	+	+++	++	+
1209	5	3	+	+++	++++	+
1303	6½	6	−	+	+	−
1310	7	6	−	+	+	−
1121	10	15	−	+	+	−
1293	6	6	+	+++	++++	−
1302	8	3	+	++	++	−

The results show that in the group with demonstrable accessory cortical tissue all 3 mice developed mammary cancer, and did so after as short a period of œstrinisation as is necessary for intact mice. In these 3 mice the testes were as atrophic and spermatogenesis was as completely arrested (fig 7) as in intact mice which have been œstrinised, and the pituitary changes, hyperæmia, and hypertrophy were also as conspicuous In one mouse (No. 1209) there was a pituitary adenoma. In this inbred strain, as in the mixed strains, the animals with accessory cortical tissue reacted to œstrinisation in the same manner and as readily as intact mice of the strain They may therefore be used as a comparison for the remaining 5 mice Fig 4 is a low-power photomicrograph of a mamma from a mouse belonging to this group (No 1262 in table III) A palpable carcinoma had developed in one mamma of this animal. The figure illustrates the condition of another mamma, in which a very early stage of carcinogenesis was found on microscopical examination

In the other group of 5 mice without demonstrable accessory adrenals, *two developed mammary* tumours after a longer interval than was observed in the first group; the other 3 mice had remained free from mammary cancer for six months or more, and microscopical examination showed a very poor development of the mamma This is illustrated in fig. 5, which shows the mamma of mouse No. 1310 in table III. For comparison, fig. 6 is given as illustrating the condition of the mamma from an intact œstrinised male of the R III strain which did not respond readily to the carcinogenic effect of œstrinisation. This mouse (No 1290) had been œstrinised for seven and a half months without developing a carcinoma After such a treatment *the mamma of most males of this strain* would have undergone the malignant change and presented an appearance more like that shown in fig. 4 But even in the *relatively* resistant mamma of mouse No 1290 there is an abundant development of mammary tissue with full secretory activity, and this development is in part atypical, indicating a precancerous condition There is, therefore, a striking difference between the reaction to œstrinisation of the mamma in an intact animal of this strain when the mamma is naturally resistant to carcinogenesis, and of a mamma in an animal rendered resistant by adrenalectomy. In the former the mamma is fully developed; in the latter this development is absent The changes in the testis and pituitary were as marked in the 2 mice with mammary tumours (Nos 1293 and 1302) as in the 3 mice in which accessory cortical tissue had been found (table III and fig 7) They were slight in the other 3 mice without mammary tumours This is illustrated by the *condition of the testis of mouse* 1303 (fig 8). The results show that adrenalectomy makes male mice of the R III strain more resistant to the carcinogenic effect of œstrinisation but *does not confer an absolute*

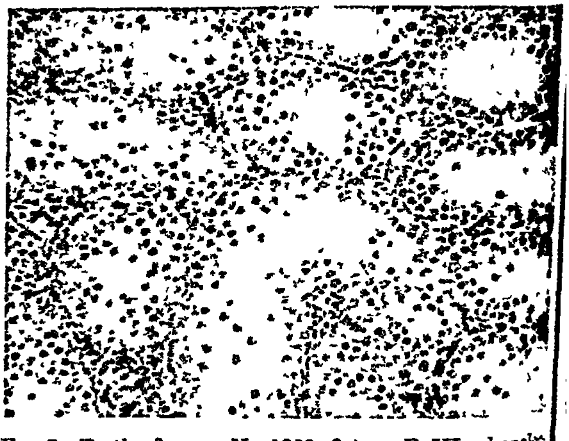

FIG. 7—Testis of mouse No 1262 of strain R III, adrenalectomised and œstrinised for 5 months. Accessory cortical tissue was present. The testis shows the atrophy and cessation of spermatogenesis also found in intact mice after œstrinisation See fig. 4 for condition of mamma

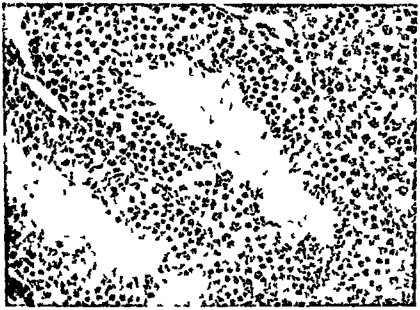

FIG 8—Testis of mouse No 1303 of strain R III adrenalectomised and œstrinised for 6½ months The testis was almost normal in size, and there is active spermatogenesis

protection against it In the presence of accessory cortical tissue adrenalectomy fails to protect the organism against the effects of œstrinisation

There was a close parallelism between the effects of œstrinisation on the mamma on the one hand and on the endocrine system on the other resistance to mammary cancer was accompanied by resistance to changes in the endocrine system

Summary and Conclusions

This investigation has given three clear cut results—

(1) Adrenalectomy is followed by changes in the thymus, the pituitary, and in the mamma, which are the reverse of those produced by œstrinisation.

(2) Œstrinisation makes mice resistant to adrenalectomy, as judged by their survival

(3) Adrenalectomy makes mice resistant to the physiological effects of the œstrogenic hormone of the ovary In the absence of accessory cortical tissue, it diminishes or prevents the arrest of growth and loss of weight, the atrophy of the thymus and of the testis, the changes in the anterior lobe of the pituitary, and the hyperplasia and secretory activity of the mamma In producing this resistance to œstrinisation the absence of the hormonal functions of the adrenal gland has the same effect as that produced by us previously by a continued supply of the physiological antagonist to the ovarian œstrogenic hormone, the so-called thyrotropic hormone of the anterior-pituitary lobe

These three results are consistent with each other They lead to the conclusion that the adrenal gland possesses hormonal functions which are synergic with the œstrogenic functions of the ovary This conception is in accordance with the close embryological relationship between the adrenal cortex and the ovary, and with the recent findings that œstrogenic hormones are present in the adrenal cortex This synergism does not imply that these hormonal activities of the ovary and the adrenal merely summate each other There are the alternative possibilities that the œstrogenic ovarian hormone requires for its activity a preliminary transformation in the adrenal gland, or that it needs the simultaneous presence of the synergic adrenal hormone

The pathological effect produced by the prolonged application of the ovarian œstrogenic hormone—carcinogenesis in the mamma—can also be weakened in the absence of the hormonal activity of the adrenal glands It follows therefore that the adrenal gland possesses hormonal functions which play a part in the ætiology of mammary cancer This may account for the fact that ovariectomy in female mice belonging to a strain with a high incidence of mammary cancer delays but does not prevent the development of mammary cancer (Lathrop and Loeb 1916 and Loeb 1919), unless it has been carried out soon after birth (Cori 1927) Whether this part is merely a contributory one or whether it is as important as that of the ovary is a problem demanding further investigation

The effect of adrenalectomy on the thymus and the lymph glands demonstrates the existence of an endocrine control of these tissues The occurrence of neoplasms of the thymus in 4 mice in which a disturbance of the hormonal balance had been brought about by various means suggests the existence of endocrine factors in the ætiology of thymus tumours

In 9 mice of another inbred strain with a high incidence of mammary cancer the brown degeneration of the adrenals was regularly observed

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COMBINED
SERUM AND SULPHANILAMIDE
IN THE TREATMENT OF STREPTOCOCCAL INFECTIONS IN MICE

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(From the Bacteriological Department, London Hospital and Medical College)

ALTHOUGH drugs of the sulphanilamide class have given striking results in the treatment of various bacterial infections, there is still room for improvement In some cases of acute hæmolytic streptococcal infection with a persistent bacteræmia these drugs seem powerless to control the infection, in others control can be obtained only by giving dangerously large doses

It is not clear what factors are responsible for these failures of the new chemotherapy It may be that sometimes the infecting streptococcus is drug-resistant, there seems to be an impression also that streptococcal septicæmia following cellulitis is less amenable to treatment with sulphanilamide than puerperal septicæmia It appears more probable, however, that the explanation of the majority of failures is to be sought in the depression of activity of the host's phagocytic cells and the failure in immune response Although the mode of action of sulphanilamide and similar preparations is imperfectly understood, it is clear from the work so far published (Colebrook, Buttle and O Meara 1936 Bliss and Long 1937, Gay and Clark 1937) that they are not directly bactericidal but merely bacteriostatic they require the coöperation of phagocytes in order to bring about the destruction of the bacteria Apparently the drug interferes with the metabolism of the bacterium and so prevents the development of those attributes on which virulence depends. Lyons and Mangiaracine (1938) for instance have shown that virulent β-hæmolytic streptococci grown in media containing sulphanilamide become spontaneously agglutinable and readily phagocyted and killed in vitro by human blood containing no specific antibody; these findings suggest either some alteration in, or imperfect development of, the surface or capsular antigen Specific bacterial antibodies, on the other hand, render the bacteria innocuous by uniting with and altering those antigens responsible for virulence—the capsular antigens in the case of the hæmolytic streptococcus and the pneumococcus They achieve the same effect as the drug but in a different manner. The two therapeutic agents, drug and antiserum, are therefore complementary in their action and the efficacy of the two together should be much greater than either alone.

Already there is some evidence that this is so. Fleming (1938) has demonstrated by in-vitro tests on pneumococci that the addition of immune serum enhances the action of M. & B. 693. Experiments with staphylococcal infections in mice carried out by De and Basu (1938) pointed to the beneficial effect of a combination of drug and antiserum. In the treatment of gonorrhœa with sulphanilamide Cokkinis and McElligott (1938) produced evidence which suggested that this form of chemotherapy is most effective when the patient has had time to acquire some degree of active immunity to the infection. And quite recently, since the work reported below was completed, Lyons and Mangiaracine (1938) have shown the necessity of bacterial antibody in addition to sulphanilamide in the treatment of certain persistent bacteræmias due to the hæmolytic streptococcus.

Sulphanilamide and similar compounds are toxic and although grave toxic symptoms arise but rarely from their use in the treatment of human disease, any means whereby the dosage could be reduced would be welcome The possibility of achieving this by combining immunotherapy with the administration of the drug led me to undertake some experiments on mice; the results obtained form the subject of this communication

Before describing the experiments it should be pointed out that although an antiserum will protect mice against a group A hæmolytic streptococcus when it is given prophylactically—i e, the day, or at least some hours, before infection (Dochez, Avery, and Lancefield 1919, Loewenthal 1932, 1934, 1938, Lancefield 1934)—there is no evidence that it has any beneficial effect on an established infection. And with regard to the efficacy of sulphanilamide in experiments of this type it is clear from the available evidence (Buttle, Gray, and Stephenson 1936) that single doses of the drug administered *immediately* after infection, while postponing the death of the mice, succeed in saving only a small percentage of the animals

TECHNIQUE OF EXPERIMENTS

Administration of the drug.—The sulphanilamide (Sulphonamide-P Burroughs Wellcome) was ground to a fine powder and suspended in a 3 per cent. solution of tragacanth immediately before use. The suspension was vigorously shaken and the appropriate amount given to mice by mouth with a syringe fitted with a long blunted needle.

The *antistreptococcal serum* was prepared in the rabbit according to a method, recently described (Loewenthal 1938), which depends on the use as antigen of young encapsulated cocci killed by heating for twelve minutes at 56° C. Such sera protect mice against as many as 100,000 M.L.D.

Strain of streptococcus—The strain of *Streptococcus pyogenes* (L. 193) used in these experiments was isolated originally from a case of puerperal septicæmia. It belongs to Lancefield's group A and Griffith's type 13. Its mucoid phase is of high virulence for mice, 0·5–1 c cm. of a 10^{-9} dilution of a serum neopeptone-water culture killing mice in two to three days. The infecting dose used in the majority of the experiments was shown by plate counts to contain 100–200 cocci.

SULPHANILAMIDE AND SERUM USED PROPHYLACTICALLY

In these experiments the immune serum was given sixteen to eighteen hours before, and the sulphanilamide immediately after infection. Preliminary tests had shown that 0·1 c cm. of the serum, given the day before infection, protected mice completely against the test dose (1 c.cm. of a 10^{-7} dilution of an overnight culture) of the strain L 193. Smaller doses of serum (0 05–0 03 c cm) enabled the mice to live longer than the controls. A dose of 0 02 c.cm of the antiserum was therefore chosen The amount of the drug was varied from 6 to 25 mg. The result of one experiment, representative of five, is given in table I

TABLE I—PROPHYLACTIC EFFECT OF SULPHANILAMIDE ALONE AND WITH IMMUNE SERUM

Sulphanilamide (mg)	Serum (0 02 c cm)	
	Immune	Normal
—	D2 .. D2 .. D2 .. D2	D2 .. D2 . D2 .. D2
6	D3 .. S .. S .. S	D2 .. D2 .. D3 . S
12	D4 .. D8 . S .. S	D6 .. D8 .. D8 .. S
25	S .. S .. S .. S	D6 .. D6 . D7 . S

S = Survived D = Died Numerals indicate day of death after infection

All the mice receiving either immune or normal serum alone died in two days and the majority of the animals given sulphanilamide and normal serum also succumbed, whereas those receiving sulphanilamide and immune serum mostly survived Although it may be open to doubt whether the differences between the groups of mice receiving 6 or 12 mg of sulphanilamide and immune serum and those which got the same amount of drug and normal serum is significant, there can be no doubt on this score in the case of the mice receiving 25 mg of the drug, here the combination of drug and serum is obviously superior Similar results were obtained in other experiments with 20 mg. of sulphanilamide and it can be concluded that single large doses of the drug alone, though postponing the time of death, are unable to prevent a fatal outcome of the infection, *whereas in mice passively immunised they are* regularly capable of doing so.

SULPHANILAMIDE AND SERUM USED THERAPEUTICALLY

In view of these results it was decided to test the synergic efficacy of sulphanilamide and antiserum given after infection Mice were given the same infecting dose of the streptococcus L 193 as in the previous experiments. Untreated in any way such animals show obvious signs of infection in eighteen hours; some die as early as twenty-four hours after infection, whilst the peak of the mortality is reached about the thirty-sixth hour. Treatment was commenced at the eighteenth hour after infection and consisted of the intraperitoneal injection of 0 02–0 05 c.cm of antiserum and the administration by mouth of 15–25 mg of sulphanilamide. Control groups of

TABLE II—RESULTS OF EIGHT EXPERIMENTS TESTING THE EFFICACY OF SULPHANILAMIDE AND SERUM GIVEN TOGETHER 17–18 HOURS AFTER INFECTION

Experiment	Number of surviving mice treated with—			
	Normal serum	Immune serum	Drug	Drug +immune serum
1	0/5	0/5	1/5	4/5
2	0/5	0/5	0/5	2/5
3	0/6	0/6	2/6	4/6
4	0/4	0/4	0/4	3/4
5	1/10	0/10	3/10	8/10
6	0/5	0/5	0/5	4/5
7	0/5	0/5	1/5	4/5
8	0/20	0/20	1/20	16/20
Total	1/60	0/60	8/60	45/60

The numerator of the fraction denotes the number of survivors, the denominator the number of mice in the group

mice, similarly infected, received immune serum alone normal rabbit serum in the same dose alone, and the drug alone The mice were kept under observation for two weeks Altogether eight experiments have been carried out and although these experiments were not strictly comparable, since the dosage of serum and drug varied in the different tests, their results have been grouped together in table II, whilst the result of the last experiment (No 8), in which 80 mice divided into four groups of 20 were used is given in detail in table III

It is clear from the data set out in these two tables that although immune serum alone is without effect on an established hæmolytic streptococcal infection in mice, and sulphanilamide by itself is only able to save a few of the animals, the two together save three-quarters of the mice Since treatment was only commenced when the mice were seriously ill and some six hours before the first deaths would normally cur, this is striking proof of the synergic action of lphanilamide and immune serum

TABLE III—COMBINED SERUM AND SULPHANILAMIDE TREATMENT OF MICE INFECTED 18 HOURS PREVIOUSLY

Mice receiving—		Death in days after treatment							Survivors alive after 14 days
Drug	Serum	1	2	3	4	5	6	7	
—	Normal rabbit 0 05 c cm	16	4	–	–	–	–	–	0
—	Immune rabbit 0 05 c cm	14	6	–	–	–	–	–	0
20 mg	Normal rabbit 0 05 c cm	13	2	–	2	–	1	1	1
20 mg	Immune rabbit 0 05 c cm	3	–	–	–	–	1	–	16

DISCUSSION

In view of the incompleteness of our knowledge of e mode of action of sulphanilamide it would be sh at this juncture to attempt any explanation of e synergic action of the drug and the immune rum As I have already stated the evidence vailable suggests that these chemicals exert their arative effect by action on the bacterium or its products rather than by any stimulation of the defence mechanism of the host and the results of the experiments recorded in this paper seem to support this contention The fact that in the preventive as well as in the therapeutic experiments the amount of drug could be only slightly reduced when antiserum was also given seems to indicate that the main responsibility of overcoming the invading microorganism lies with the sulphanilamide and that the serum acts in a supplementary though no less important manner It is probable that the main rôle of the serum is to attack the fully developed virulent streptococci and by uniting and neutralising those antigens on which invasiveness depends render the bacterium susceptible to phagocytosis That this action of specific serum is different from, and a valuable addition to, the action of the drug is furnished by the experimental evidence recorded above, the two factors together achieve more than either alone can do This point of view finds further support in the observations of Cokkinis and McElligott (1938) on the necessity for the development of some degree of active immunity in gonorrhœa if sulphanilamide is to effect a rapid cure, and the work of Lyons and Mangiaracine (1938) showing that the failure of this drug to control cases of overwhelming streptococcal septicæmia is to be attributed to the absence of protective antibody Whether in human infections which are not of overwhelming severity the combined use of drug and serum will enable us to reduce the amount of drug it is impossible to say But even though the mouse experiments do not hold out much hope of this being so this point should be investigated directly in human infections, for, after all, the mouse experiments are more comparable to those human cases which from the outset are overwhelmed by the invading bacterium And the fact that the immunity to the β hæmolytic streptococci is type specific does not render the task of making available protective sera insuperable In the case of the pneumococcus the same difficulty has been faced and overcome and my recent work (Loewenthal 1938) seems to show that the same should be possible in the case of the streptococcus

SUMMARY

A single dose of sulphanilamide administered at the time of infection with hæmolytic streptococci will protect only a minority of normal mice, whereas it protects the majority of animals which have received, 16–18 hours before infection a dose of antiserum incapable by itself of preventing death

Mice infected with hæmolytic streptococci can be effectively treated with a combination of sulphanilamide and antiserum even if this treatment is begun as long as 18 hours after infection, when the animals are already severely ill Since neither sulphanilamide nor antiserum alone can achieve this result it appears that these two therapeutic agents act in a different but complementary manner

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THE USE OF PLACENTAL BLOOD FOR TRANSFUSION

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IT is only recently that human blood has been stored for considerable periods under refrigeration and a supply kept ready at hand in hospitals for emergency transfusions This is a valuable advance on the previous system of having to send for a donor when an emergency arises, and a great deal of time and annoyance is saved if a supply of different groups is always available

It appears from experience gained in the Spanish civil war that army medical services and civilian casualty hospitals must in future be prepared to arrange for the storage of blood on a large scale. In the Spanish civil war 200 c cm quantities of blood have been provided in sealed ampoules ready for emergency transfusions The blood is obtained from voluntary donors and is sent up to the front line in a specially equipped lorry The British Red Cross Society at the time of the recent national emergency had formulated a scheme for bleeding voluntary donors and preserving their blood as a daily routine. In America some hospitals have established "blood banks" in their basements where suitable refrigeration plants have been laid down

The question then arises how blood in quantity can be provided It is possible to obtain blood from three sources: firstly from an organised voluntary-donor service; secondly from the cadaver as is done in Russia; and thirdly from the placenta during the third stage of labour. The purpose of this paper is to draw attention to the feasibility of the last method and to detail the technique of the collection and storage of blood obtained from this source, together with the effects on mother, baby, and recipient

At the City General Hospital, Leicester, we have a maternity department which deals with about 550 deliveries a year, and so there has been a very considerable source for placental blood Where a patient is examined in one of our own antenatal clinics, a Wassermann reaction is performed as a routine so that unsuitable subjects are largely eliminated before labour commences.

METHODS AND CONTRA-INDICATIONS

Technique of collection.—When the baby is born it is laid on the mother's abdomen or in some other convenient place The cord is clamped immediately with two artery-forceps, without waiting for pulsation to cease, and the infant is separated and handed to an assistant. The distal 6 in of the cord is wiped clean with spirit and a fresh cut made with sterile scissors, the cord being controlled by the finger and thumb of the right hand, the left hand controlling the uterus.

The assistant holds the collecting receptacle and the operator directs the blood, which issues in a forcible jet, into the flask without allowing any part of the cord to touch it During a uterine contraction the blood flows freely and in the intervals the cord is pinched by the finger and thumb to prevent spilling. It is better not to use a funnel, although this makes the collection of the blood much easier, because a clot may form in it and be washed into the flask Full aseptic precautions are observed and a sterile towel with a central hole is all that is necessary to isolate the cord

Anticoagulant and receptacle—The most convenient form of receptacle is a conical flask of 300 c cm capacity which is marked with 100 and 200 c cm graduations Into this is placed 80 c cm of physiological saline made from doubly distilled water and a cotton-wool bung is fitted so that the whole can be autoclaved. To the outside of the flask are strapped

(1) A glass ampoule containing 1 gramme of recrystallised sodium citrate.

(2) Two small *test-tubes*, A *containing* 1 c cm of 3·8 per cent. sodium-citrate solution, and B fo collecting a specimen of blood for the Wassermann reaction (fig. 1).

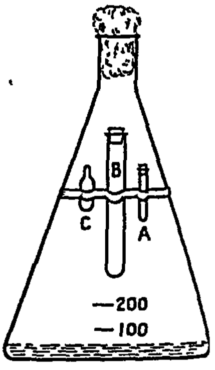

FIG 1—Receptacle fo blood A=tube fo grouping B = tub for Wassermann C= ampoule containin sodium citrate (1 0 g)

Just before use the ampoule is broken and its contents added to the flask the crystals dissolve quite readily at room temperature and heating is unnecessary.

When there is sufficient blood in the flask, a small *amount is collected into the* test-tubes A and B. A is for grouping purposes and B is *for the Wassermann if this* test has not been performed upon the mother recently

The flask is labelled with the mother's name and the date and transferred to a refrigerator, at 33°–38° F. The necessary laboratory tests are performed as soon as possible and the blood is ready *for use when* th group is known A list is kept of the amount o blood of each group in stock, any additions or sub tractions being carefully noted *Each specimen* is kept in its original flask until required

Contra-indications to bleeding the placenta—Blood is not taken when there is any transmissible disease, when *labour is premature*, when there is a multiple pregnancy, or when the membranes have been ruptured for more than 48 hours If any accident of the third stage arises *or if the* infant requires resuscitative measures the collection of blood is abandoned in favour of the more important procedure

DISCUSSION

Anticoagulant—Goodall et al. (1938) use th preservative proposed by the Moscow Institute o Hæmatology which consists of:—

Sodium chloride .. .	7 0 g
Sodium citrate	5 0 g
Potassium chloride	0 2 g
Magnesium sulphate	0 004 g.
Twice-distilled water . . .	1000 0 c cm

25 c.cm. of this fluid being added to 100 c cm distilled water before use. This solution is r referred to in the Canadian and American pre "citro-seroid" Using this fluid however, we fo that hæmolysis began after one week and beca quite marked at the end of the second week.

solution of sodium citrate only was then used—1 *g to 80 c cm of twice distilled water—and* substantial improvement in the keeping qualities of the blood was noted. Finally a citrate saline has been used with success. Hæmolysis is now negligible. Grodberg and Carey (1938) say that they took special care to prevent mixing the blood with saline or Ringer's solution, as clotting occasionally occurred when this was inadvertently done. In our experience this need not be feared. We have never been troubled by clotting when using citrate saline in the strength indicated.

Effects on the mother.—The mother might be affected in one way only—does the placenta separate as readily when it is empty as it does when engorged with blood? Goodall says that the third stage of labour is not prolonged. This is quite definitely our own observation.

Effects on the baby.—When we commenced storing placental blood we were met with the criticism that we were robbing the baby. Whilst it was obvious to us that we were merely taking blood from a diverticulum of the fœtal circulation it was thought advisable to do a series of blood counts on a group of babies. Twelve babies whose placentæ had supplied blood and twelve controls were taken and blood counts performed on the first, second, and seventh days after birth and immediately before discharge from hospital on about the fourteenth day. Fig 2 shows that there is no appreciable difference in the blood count of the two groups. The average counts of the two groups may be contrasted as follows:—

	PLACENTAL GROUP		CONTROL GROUP	
Day	R B C × 10,000	Hb	R B C × 10 000	Hb
1	675	15·2	651	15·3
2	660	15·0	641	15·0
7	641	14·8	606	14·6
13	606	14·5	601	14·3

R B C = red blood-cells. Hb = Hæmoglobin in grammes per 100 c cm.

Icterus has not been a feature of these two groups of children. It occurred in mild degree in three cases, one in the placental group and two in the control group.

Amount of blood obtained.—Goodall says that an average of 125 c cm of blood could be obtained from a placenta. This figure appears to us to be optimistic. In our last fifty cases we have obtained an average yield of 80 c cm. This follows more closely the figures of Grodberg who obtained an average yield of 107 c cm from male children and 103 c cm from female children. This amount of blood—which it must be remembered has a red-cell content of 6,750,000 per c mm—is mixed with 80 c cm of anticoagulant with the result that we have 160 c cm of transfusible fluid with a red cell content of approximately 3,750,000 per c mm. This compares quite favourably with the blood obtained from a donor, which is usually diluted so that 500 c cm of blood is made up to 600 c cm, with the result that an original content of 5 000,000 red cells per c mm in the donor becomes 4,000,000 per c mm in the transfusible fluid.

Sterility.—Fifty specimens of blood after having been stored for varying periods showed no obvious contamination as evidenced by discoloration of the blood or froth on the surface.

For the purpose of this paper, fifteen consecutive specimens have been subjected to rigid bacteriological examination. Fourteen specimens were sterile and one specimen gave a mild growth of a *Staphylococcus albus* which did not produce a blue colour on Chapman's medium (Chapman and Berens 1935) and was considered non pathogenic. At this point in the investigations the personnel of the blood-collecting team was changed and our technique was not strictly followed with the result that three out of five subsequent specimens were contaminated. It is obvious therefore that the sterility of the placental blood depends entirely upon the strict adherence to the technique laid down and upon the coöperation of the staff. Any slackness in the collecting team is *immediately followed by contamination*.

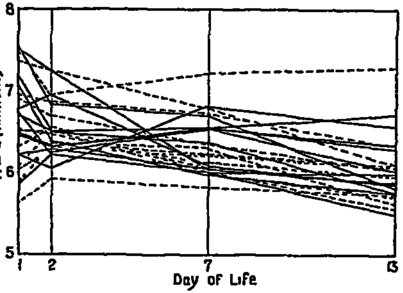

FIG 2—Graph showing fall of blood count in group of babies during the first two weeks of life. Continuous lines bled placenta group. Interrupted line control group.

Effects on the recipient.—One or two points appear to us to be of prime importance. After standing in the refrigerator the blood cells of course sediment. Before use it is essential to mix the blood thoroughly and this should be done by gently swinging the flask with a rotary motion. Any violent shaking or stirring should be avoided since it causes excessive destruction of cells. The blood before use in every case must be filtered through several layers of gauze. Other papers on this subject state that the blood should be warmed before use. This does not seem necessary; in fact unless done carefully it may be harmful and cause feverish reactions. If time permits all that appears necessary is to allow the flask of blood to stand at room temperature for half an hour before use. If the drip technique is used even this preliminary delay is unnecessary.

We have accepted the fact that the fœtal blood-*groups are fixed at birth and have not regrouped the* stored bloods before use. As a routine measure direct matching of the recipient's serum and the stored cells is carried out and in no case has an unexpected result been obtained.

We have now given 25 transfusions of stored placental blood and have only once met with a severe reaction. This did not appear to have been due to placental blood but to the development of iso-agglutinins to the cells of the original donor, her own son. Slight rises of temperature have occurred on other occasions early in the series and have appeared to follow undue heating of the blood. As previously stated we are now of the opinion that it is unnecessary to heat the blood before use.

The following case illustrates the rapid rise in the blood-count in a case of severe internal hæmorrhage.

Male, aged 47 A case of peptic ulceration which developed symptoms of intestinal hæmorrhage on Nov. 6, 1938, whilst in the ward His blood-count fell rapidly until it reached the low level of 1,450,000 red cells per c mm. His progress during the next week is shown in fig. 3

This case also demonstrates that it is possible to mix placental blood from different sources and also with stored blood from a voluntary donor. In our series the greatest number of separate bloods of the same group mixed together has been three and we can see no reason why any number of bloods of the same group cannot be mixed if large transfusions are necessary We have now in the hospital a patient with splenomedullary leukæmia who has had daily transfusions of placental blood for nine days without any reactions and with considerable clinical improvement

Length of storage.—We can add no information about the length of time it is possible to store placental blood Cadaver blood is stored for 60 days As a rule we have used the blood within two weeks, but we have now in the refrigerator two flasks of group A B and group B bloods which have been in store for over a month and the degree of hæmolysis is minimal

Among the *advantages of placental blood* over ordinary blood are the fact that it contains no food allergens, and that its coagulating effect is 20–25 per cent higher than that of ordinary blood so that its use in internal hæmorrhage is especially indicated.

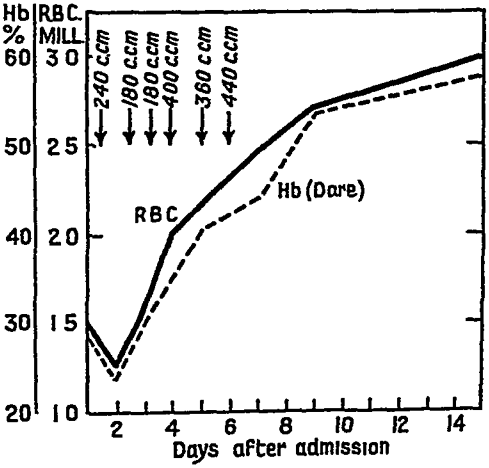

FIG 3—Post-hæmorrhagic anæmia treated by repeated transfusions (indicated by arrows)

SUMMARY

1. Placental blood is a ready and inexhaustible source of supply for transfusion purposes. It is easy to collect and to store in a refrigerator in bulk supplies of the various blood-groups Blood of the same group can be mixed to provide large transfusions.

2 No abnormal reactions have been encountered during and after actual transfusions It is unnecessary, and in our view possibly harmful, to heat the blood to body temperature before giving it.

3 Placental blood is preferable to ordinary adult blood because it contains no food allergens and because its clotting-power is greater. The latter is an advantage in dealing with hæmorrhage.

4 A citrate saline solution has been found to be the best anticoagulant, for it gives minimal hæmolysis after prolonged standing.

5 Rigid observance of the technique laid down for sterile collection of the blood is essential if contamination is to be avoided.

We wish to express our thanks to Dr. E C. Hadley, medical superintendent of the City General Hospital, Leicester, for his permission to undertake this work and for helpful criticism, also to Dr. R. E M. Fawcett, Dr. J M. Brown, and Dr. A. W. Abramson for carrying out most of the blood-transfusions.

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TRANSFUSION WITH PLACENTAL BLOOD

BY J HALBRECHT, M D.

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BLOOD-TRANSFUSION still presents us with many problems that await solution. Not the least pressing is that of maintaining an adequate and constant supply of blood. The fact that blood preserved for as long as a month does not apparently lose any of its therapeutic value has helped to solve this problem partially; blood depots have been and are being established in many places (Yudin 1936) A more satisfactory source of blood than the ordinary donor, who is expensive when a professional and uncertain otherwise, is cadaver blood (Goodall et al. 1938) or that portion of fœtal blood which is ordinarily thrown away with the placenta (Vinograd and Finkel 1932)

In the Beilinson Hospital we have introduced the use of placental blood with satisfactory results The use of preserved blood, especially placental, *has another advantage over fresh blood in countries* with endemic malaria To be absolutely safe one must not inject fresh blood from anyone who has at any time had malaria, whereas with placental blood, even if the mother has had malaria recently, the organisms usually do not pass the placental filter, congenital malaria being very rare Still more important is the fact that in preserved blood the plasmodium quickly dies Preserved placental blood is thus doubly safeguarded.

TECHNIQUE

The method is simple, requires no special apparatus and can be carried out in any hospital. In this way we have obtained an average of 50–60 c cm at every birth (with a maximum of 160 c cm) We simply let the blood flow into the flask from the end of the cord ; this is the simplest and, we believe, safest method. Aspiration is not necessary and carried out during a birth is only cumbersome The simplest anti-coagulant, an isotonic (3 8 per cent) solution of sodium citrate, is all that is required The various more complicated solutions recommended offer no obvious advantages The slight hæmolysis (which is harmless) that usually occurs in the first 48 hours cannot be prevented by the use of these complicated solutions.

We keep the blood in a refrigerator at 4°–5° C for as long as fourteen days. We cultured 48 samples and found 4 contaminated with *Staphylococcus aureus* most likely during the obtaining of the blood or during its preservation No doubt the same proportion of our placental bloods transfused were contaminated but they produced no harmful effects on the recipients Vinograd and Finkel (1932) report the same and also emphasise the harmlessness of such contaminations The low temperature at which the blood is kept inhibits the growth of any casual contaminants, and the small number of organisms that may be introduced into the circulation is adequately dealt with by the recipient We have used no blood from placentas in cases where the mother had fever just before or during labour Syphilis has to be excluded in the usual way

As soon as the blood is obtained, its group is determined and the flask labelled accordingly Before transfusion each blood is separately cross tested against the blood of the recipient This may take time when blood from five, six, or more placentas are pooled for a large transfusion, but this check of compatibility is indispensable if one wants to be as safe as our modern methods permit

RESULTS

Up to now we have given 116 transfusions of blood obtained from 520 placentas The transfusions were given in various conditions, to children as well as to adults, the amount given varying from 10–15 c cm per kg in infants to 5–10 c cm in adults We are satisfied with our results and, as far as they can be evaluated, we consider them not inferior to those obtained in similar conditions with ordinary fresh blood In obstetrical complications, for instance, such as placenta prævia, inertia, and atony of the uterus with hæmorrhage, recovery of the patients was as satisfactory and as rapid as after fresh blood Such cases, in which the need for blood is urgent, cease to be alarming when one is sure that an adequate supply of blood is always at hand, and that there is no need to search for suitable donors in these emergencies

In our 116 transfusions we have had no serious accidents and only 4 reactions 3 consisting of a chill and 1 of dyspnœa and tachycardia The number of reactions recorded depends on so many factors that we cannot compare our results with ordinary donors' blood, but surely they are no worse We believe that our experience warrants us in concluding that preserved placental blood is equal in value to fresh donors' blood for transfusions We feel justified in urging the greater exploitation of this source of blood The throwing away of 50–60 c cm of blood with each placenta is a pitiful waste Our need of blood for transfusions is great, owing to the large number of casualties admitted In spite of this we were able, from the time we began to use placental blood, to provide almost the whole of the necessary blood from this source

SUMMARY

(1) Placental blood was used in 116 blood-transfusions

(2) Blood preserved in a 3 8 per cent solution of sodium citrate up to 14 days was used

(3) The results are considered to equal those obtained with ordinary blood

(4) Placental blood is an important source of blood for transfusions

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DIVERTICULA OF THE DUODENOJEJUNAL *FLEXURE*

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Of late years many papers have appeared dealing with various aspects of diverticula of the pharynx, œsophagus, duodenum jejunum, and colon, and they are no longer dismissed as anatomical curiosities Diverticula at the duodenojejunal flexure are rare, and our knowledge of them is limited Careful clinical study of two cases, together with a study of others on record, has led me to believe that a diverticulum of the duodenojejunal flexure is a clinical entity with definite symptoms and a definite treatment The lesion may cause serious complications endangering life The possibility of its presence must be considered in the differential diagnosis of certain abdominal lesions, and if this is done the number of unsuccessful operations—e g, appendicectomy—will be reduced A knowledge of the occurrence of a diverticulum in this part of the small intestine is necessary when operations such as partial gastrectomy and gastrojejunostomy are performed In this paper the symptomatology, diagnosis, complications, and surgical treatment of the condition are discussed, and detailed case records of two patients are given An operation is also described for excision of the diverticulum

CASE-RECORDS

Case 1—A woman, aged 68, had for 17 years experienced severe pain localised to the epigastrium and coming on 1–3 hours after food The pain was not relieved by more food or by alkaline powder. At times the pain radiated to the left shoulder She woke at 2 to 3 A M with pain There was frequent vomiting, which did not give relief from pain Heartburn was present Because of the pain the patient was afraid to eat She was constipated, and she had lost some weight

On admission she was thin and had obviously lost weight No abnormality was found in the neck or chest There was some tenderness on deep palpation in the middle of the epigastrium, but no other physical signs

Radiography after a barium meal showed a normal stomach of good tone with normal peristalsis In the supine position the rugæ of the stomach were clearly outlined There was a large flake of barium and an air-cap in the medial aspect of the duodenojejunal junction By positioning the patient and by palpation this flake was seen to be separate from the rugæ of the stomach Certain radiograms showed this mass to be posterior to the stomach but continuous with the small bowel in this region (fig 1) This mass of barium was not seen until the meal had passed through the cap into the duodenum The appearances suggested a diverticulum at the duodenojejunal junction (fig 2) With the patient supine the diverticulum was at the level of the first lumbar vertebra, in the erect position it was opposite the third lumbar vertebra

Operation (April 10 1937)—Exploratory laparotomy through a right supra-umbilical paramedian incision 4 in long A detailed examination was made of the abdominal viscera, and no other abnormality was found The steps of the operation for excision of the diverticulum at the duodenojejunal flexure were carried out as described later

Post-operative treatment—The patient was given rectal salines with 5 per cent glucose every 4 hours for 30 hours after operation During the first 12 hours following operation nothing was given by mouth; during the next 12 hours the patient was given 1 oz.

of water every 2 hours, and during the next 12 hours she was given 2 oz of citrated milk alternately with 2 oz of water every hour. During the fourth 12 hours after operation the patient was put on the third day of the Lenhartz diet Convalescence was uneventful, and the patient made an uninterrupted recovery. Eighteen months after the operation she is perfectly well and has had no abdominal pain whatever.

Report on specimen—Dr. L W. Proger reported as follows. A thin-walled pouch 1 in. in diameter with an opening ¾ in. in diameter (fig. 4). Sections show a lining of chronically inflamed intestinal mucous membrane resting on a narrow layer of muscularis mucosæ, the whole being enclosed in a loose connective tissue sheath (fig. 5).

CASE 2—An upholsteress, aged 56, attended hospital because of indigestion She had had indigestion practically all her life, but this had been worse for the past 6 months Pain was experienced in the centre of the abdomen 1½–2 hours after food There was a heavy leaden-feeling in the abdomen The pain was relieved by the application of a hot-water bottle. There was no night wakening There was flatulence but no vomiting. Appetite was good and bowels regular. There had been a small loss of weight. Appendicectomy had been performed 30 years previously. On admission she was healthy, with a clean tongue, and neck and chest normal There was some rigidity in the epigastrium and tenderness on palpation.

Radiography of the gastro-intestinal tract after a barium meal showed the stomach to be small and J-shaped, with very conspicuous peristalsis. No abnormality of outline of the stomach or duodenum was detected. Subsequent films showed a large diverticulum about 1½ in. in diameter, apparently arising from the duodenojejunal junction (fig. 3) The position of this corresponded to the area of tenderness. At 4 hours there was a small residue in both the stomach and the diverticulum. At 24 hours there was no abnormality of the colon.

Patient is under observation.

SYMPTOMATOLOGY

The history is often long in these cases, and the patient may have experienced symptoms all his life Pain is felt in the epigastrium and may be referred to the left shoulder. The abdominal pain comes on 1–3 hours after food. There may be night wakening with pain. Vomiting is sometimes incessant and suggests stenosis of the pylorus Heart-burn and flatulence are often prominent symptoms The patient may be afraid to eat because of pain after food, and there is usually some loss of weight On abdominal examination there is tenderness in the epigastrium, and there may be some rigidity in this region.

DIAGNOSIS

Patients presenting these symptoms should be investigated by radiography after a barium meal. Case is credited as being the first to discover diverticula of the duodenum by this method in 1913 and uses the following technique (Case 1920)

The patient is given the usual barium meal, and a brief examination is made in the erect position. He is then placed on his right side, so that gravity may aid in filling niches or sacculations in the pyloric zone When all is ready for the patient to turn over, the observer, standing on the patient's left, presses strongly with his gloved hand over the duodenojejunal junction, at the same time pushing the contents of the stomach towards the pylorus The patient is then asked to inhale, hold his breath, and turn quickly on his back, while compression of the duodenum is maintained, thus artificially producing obstruction near the duodenojejunal junction and incarcerating the duodenal contents Diverticula at the duodenojejunal flexure pass inwards, upwards, and to the right and lie below the lower border of the body of the pancreas. When filled with barium they are seen on the right side of the flexure, and by positioning the patient and by palpation it is found that the shadow is separate from the rugæ of the stomach The shadow is not seen until the barium has passed through the pylorus and on into the duodenum.

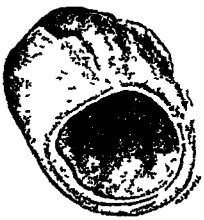

FIG. 4 (case 1)—Duodenojejunal diverticulum A thin-walled pouch 1 in in diameter with an opening ¾ in in diameter.

The following characteristics of the diverticulum should be noted. its situation, its size, its shape,

1

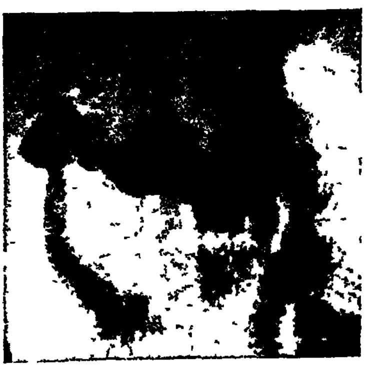

FIG 1 (case 1)—Radiogram of duodenojejunal diverticulum 3 hours after a barium meal, showing a large flake of barium posterior to the stomach but continuous with the small bowel

2

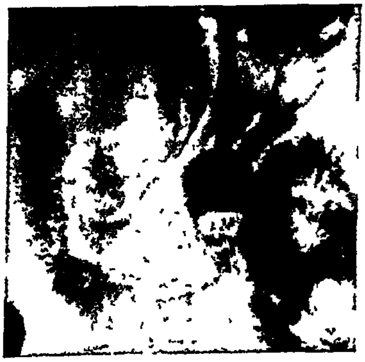

FIG 2 (case 1)—Radiogram of duodenojejunal diverticulum 4 hours after a barium meal, showing a large flake of barium in the medial aspect of the duodenojejunal junction (patient supine) By positioning the patient and by palpation this flake was seen to be separate from the rugæ of the stomach

3

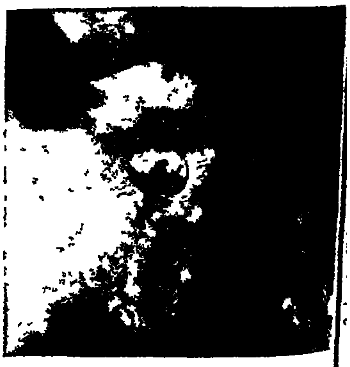

FIG 3 (case 2)—Radiogram of duodenojejunal dive culum about 1½ in in diameter This was never fi filled with barium The fundus of the diverticul is filled with air

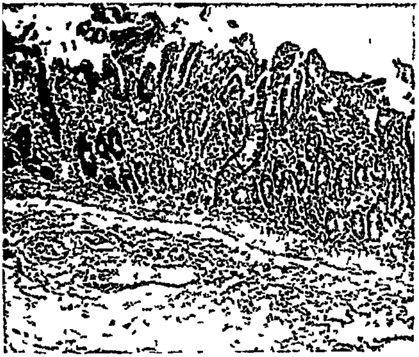

FIG 5 (case 1)—Duodenojejunal diverticulum Microscopic appearances of wall of diverticulum A lining of chronically inflamed intestinal mucosa rests on a narrow layer of muscularis mucosæ the whole being enclosed in a loose connective tissue sheath No trace of muscle coat of intestine in wall of diverticulum

the size of the orifice, its mobility, the length of time barium is retained, and whether there is tenderness If difficulty is experienced in identifying the diverticulum and its characters, the patient should be examined in the modified Trendelenburg position, which will facilitate the filling of the pouch with barium In obscure cases the duodenum may be distended with barium through a duodenal tube

COMPLICATIONS

Clairmont and Schirrz (quoted by Odgers 1930) in 1920 stated "A diverticulum is a source of all possible dangers for its bearer, and is on this account an indication for surgical interference" The complications which may occur are —

(1) *Diverticulitis* —The diverticulum may be the site of any acute inflammation either in the wall or in the peridiverticular tissues This inflammatory swelling may be severe enough to precipitate acute intestinal obstruction Krogeus quoted by Edwards (1935), records a case of acute intestinal obstruction due to a diverticulum at the duodenojejunal flexure in a woman aged 64 Acute inflammation in the wall of the diverticulum may lead to necrosis and perforation with resulting peritonitis or a localised abscess

(2) *Retention of septic contents* —If the diverticulum does not empty properly, its retained contents may become infected and cause duodenitis, cholangitis, and pancreatitis In the case of diverticula in the second part of the duodenum Wilkie (1913) quoted Bauer's case in which a diverticulum was filled with feculent semi solid matter and there were acute duodenal catarrh, swelling of the papilla of Vater, some dilatation of the bile-ducts, and jaundice

(3) *Enterolith formation* —Watson (1924) has reported a case of diverticula of the jejunum *in one* of which an enterolith had formed whose weight by traction and angulation had caused intestinal obstruction Watson cites the case of Terry and Ingler in which intestinal obstruction was caused by an enterolith which had formed in a diverticulum of the jejunum

OPERATION

Surgical treatment of diverticula of the duodenojejunal flexure must always be considered because of possible pathological changes and complications If symptoms are present and other lesions of the gastro-intestinal tract are excluded and the general condition of the patient is satisfactory, excision of the diverticulum is advisable Odgers (1930) was able to collect only 23 reported cases of excision of diverticula of the duodenum, but I am not familiar with any description in the literature of the operation for excision of a diverticulum of the duodenojejunal flexure The procedure carried out in case 1 is as follows —

The abdomen is opened through a right paramedian supra umbilical incision 4 in long The transverse colon is delivered out of the abdomen and retracted upwards The transverse mesocolon is thus kept stretched The upper portion of the jejunum is retracted downwards and to the right, and the duodenojejunal fossa is exposed at the root of the transverse mesocolon The duodenojejunal flexure is identified lying in the duodenojejunal fossa The flexure is mobilised by dividing the musculus suspensorius duodeni at the upper border of the flexure, together with the plica duodenojejunalis, which connects the summit of the flexure with the posterior abdominal wall, care being taken to avoid injury to the inferior mesenteric vein, which is lateral to its free border The peritoneum on the anterior aspect of the flexure is now divided and the flexure inspected The diverticulum is found on the right side of the flexure, lying somewhat posteriorly, in relation to the left psoas muscle, and below the body of the pancreas The diverticulum is carefully mobilised, and the flexure is rotated to the left to place the diverticulum anteriorly

The base of the diverticulum is transfixed with No 0 chromicised catgut, and the sac is excised The transfixed base is invaginated into the bowel, and a layer of Lembert sutures of No 0 chromicised catgut is inserted at right angles to the long axis of the bowel The divided peritoneum in the region of the flexure is sutured and the abdomen closed

SUMMARY

(1) Two cases of diverticulum at the duodenojejunal flexure are recorded (2) The symptomatology, diagnosis, and complications are discussed (3) An operation for excision of the diverticulum is described

I am indebted to Dr Stanley Wyard for permission to publish the records of case 2

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" A surgical technician is one who, in conjunction with the surgical and medical profession designs and produces the tools, instruments and appliances required by them in their profession, and for the use of their patients The technician must at no time assume the status of one having surgical or medical knowledge, and it therefore follows he must not advertise he is in a position to cure any human failing or physical ill It is especially forbidden that the technician should in any way proclaim, or let it be understood he can cure failings such as Deafness Hernia Blindness Paralysis etc, or any ailments in connection with the sexual system " (Ethical code of the Institute of British Surgical Technicians) *Trans Inst Brit surg Tech* September 1938, p 22

CLINICAL AND LABORATORY NOTES

THE OXFORD INFLATOR: A SIMPLE RESUSCITATOR

By R. R. Macintosh, M.A.; D.M. Oxfd, F.R.C.S
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The apparatus described here makes use of the fact that the lungs may be inflated by delivering oxygen under moderate pressure to the nose and mouth through a suitable face-piece

The oxygen passes through the reducing valve into a circular metal pressure-chamber (fig. 1), the upper surface of which is formed by a reinforced rubber diaphragm (A) As the pressure in the chamber rises, the diaphragm is progressively deformed, so relieving the tension of a small coiled spring (C) which is compressed by a pin placed between it and the diaphragm The spring then thrusts the seating of the valve against the valve-nozzle, and the flow of oxygen diminishes The degree of pressure required to raise the centre of the diaphragm is determined by the counter-pressure on its upper surface of a second spring (B), the compression of which is regulated by a milled-head screw. By this means it is possible to adjust the pressure of oxygen in the pressure-chamber, and hence at the face-piece, to any desired level. The instrument is calibrated between 20 and 80 mm. Hg.

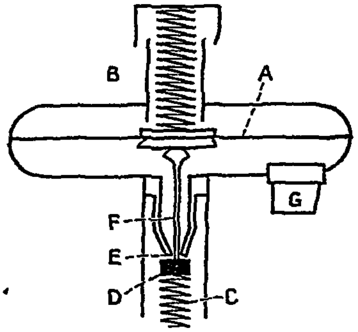


FIG. 1—Pressure chamber A = rubber diaphragm, B and C = springs; D = valve seating; E = valve nozzle, F = pin; G = safety-valve

The flow of oxygen to the face-piece is controlled by a hand-operated stopcock (fig. 2) The face-piece is applied firmly to the face. The stopcock is turned to the "inhale" position and held there until the patient's chest is seen to be inflated. Turning the stopcock to the "exhale" position shuts off the supply of oxygen and at the same time permits the chest to be deflated by its own recoil The frequency of inflation in most cases need not exceed 6–10 per minute

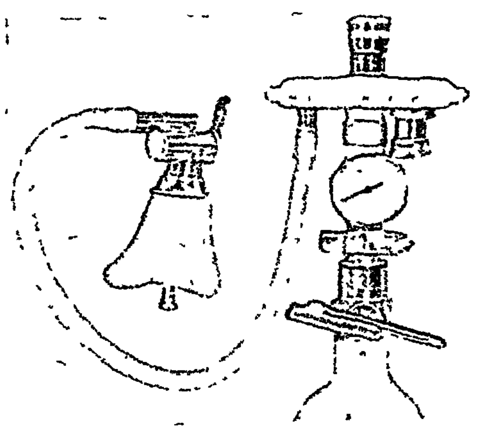


FIG. 2—Pressure chamber, stopcock, and face-piece in position.

The pressure at the face-piece does not represent the pressure throughout the respiratory passages since there may be a considerable leakage around the face-piece The leakage varies according to the degree of accuracy with which the face-piece fits the face and to the firmness with which it is applied The pressure of oxygen should be adjusted so that it just inflates the chest.

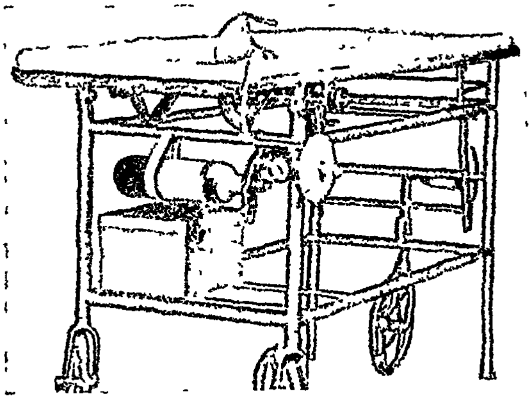


FIG. 3—Portable model.

It should be emphasised that the *effective use of this apparatus, as indeed of any method of artificial respiration, necessitates the maintenance of a clear airway.* If the patient is on his back or side and unconscious, it is often convenient to insert an airway There may be some tendency to inflate the stomach as well as the lungs, but this will be slight if the pressure used is not too great It may be further diminished by a high abdominal pad and binder

The inflator may be used to maintain respiration in respiratory failure from any cause, but its chief value lies in the urgent treatment of acute and temporary respiratory failure It is also a useful adjunct to mechanical respirators of the box type in the treatment of chronic respiratory failure, serving for the periods during which it is advisable to remove the patient from the box respirator for nursing and other purposes

The advantages of this machine are.—

(1) *Cheapness.*—The cost of the reducing valve is £10 10s, including stopcock and face-piece.

(2) *Portability.*—The only difficulties of transport are those

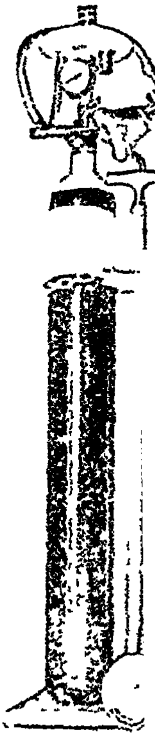


FIG. 4—Stand model.

of an oxygen cylinder Cylinders of any size may be used

(3) *Simplicity of use* —The only operations involved are (*a*) turning on the oxygen at the cylinder, (*b*) adjusting the pressure to the desired level by turning the milled-head screw, and (*c*) operating the lever of the stopcock.

(4) *Independence of source of electricity* —It can therefore be instantly used anywhere

The inflator is in use at this hospital in two forms The portable form (fig 3) utilises a 120 gal cylinder and is mounted upright on a two wheeled trolley for ease of manipulation The non portable model (fig 4) has a 60 gal cylinder carried by a bracket on a standard anæsthetic trolley

The apparatus is sold by A Charles King Ltd, 34, Devonshire Street, W 1 for whom the reducing valve was made by the British Oxygen Co We are indebted to Mr Talley, of the former firm, for help with constructional details

DIURESIS FOLLOWING ADMINISTRATION OF SULPHONAMIDE IN RENAL ŒDEMA

By A W D Leishman, D M Oxfd, M R C P

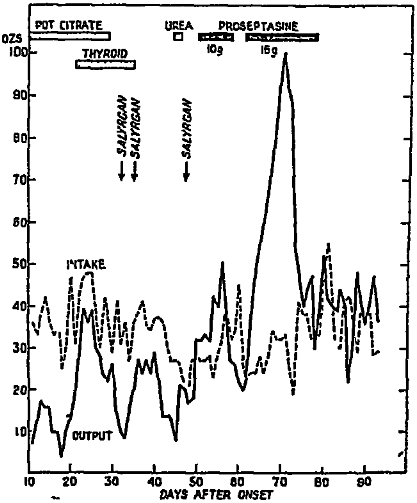
The gratifying though unexpected effect of a sulphonamide preparation on a patient with severe œdema prompts me to place on record the following case

A schoolboy aged 12 years, previously in excellent health, was taken ill on July 8, 1938, with nausea, vomiting, and vague abdominal pains These symptoms soon subsided but he remained tired and listless and had no appetite A week after the onset he was noticed to be puffy under the eyes and to have some swelling of the ankles The urine was then examined and albumin was present in large amount and a centrifuged deposit showed many hyaline and a few granular casts but no red or white blood cells or organisms The boy was afebrile and remained so throughout the illness though his pulse-rate was consistently raised The fauces and tonsils were healthy, the cardiovascular system was normal, blood-pressure 120/64, and the retinal vessels and fundi showed no changes The blood-urea at this time was 54 mg per 100 c cm, but a fortnight later it had fallen to 20 mg The boy was evidently suffering from a renal œdema and there seemed some justification for a diagnosis of nephrosis, but it was impossible to find any underlying cause for the condition

Treatment —He was given a salt-free diet which was first of low-protein type Later a high protein diet was tried but this caused such gastric disturbance that it had to be abandoned The total fluid intake was restricted to about two pints a day and various attempts were made to increase the urinary output Potassium citrate was given to the limit of tolerance, thyroid extract up to 3 grains a day, urea in 15 gramme doses, and Salyrgan both by suppository and intravenous injection Vitamins B and C and iron were given throughout In the critical stages hot-air baths were tried Of these measures the only one which seemed to increase the output of urine to any extent was thyroid extract and this had but a temporary effect (see chart)

Progress —For the first ten days after the appearance of the œdema the urinary output was desperately low and the albumin content correspondingly high, rising to as much as 3 g per 100 c cm *After some* slight temporary improvement the œdema rapidly increased and soon became generalised The boy's face was unrecognisable his scrotum and legs were enormous, and his abdomen was distended with ascites, though the pleural cavities remained dry Vomiting was an additional disturbing feature and the boy's condition became critical A specimen of urine examined microscopically at this time contained considerable numbers of coliform bacilli but no excess of pus cells or red blood corpuscles, though there were still many hyaline casts

No bladder symptoms were complained of, but in view of the gradual increase in the urinary infection a course of Proseptasine was given The maximum dosage was 1 5 g a day by mouth and this was soon dropped to 1 g and then to 0 5 g The drug was given first for eight days and after a three-day interval for another seventeen days The total dose in the first course was 10 g and in the second 16 g The effect of this treatment soon became apparent In the second week particularly, as is shown in the chart, the daily output of urine rapidly increased, reaching a maximum of 100 oz Following this diuresis the œdema visibly subsided and by the twenty eighth day of this treatment there was no trace of œdema or ascites The urine at this time was free from organisms, pus cells, or casts, and contained only a slight cloud of albumin



Fluid intake and urinary output

From time to time the bacilluria has recurred and with it there has been an increase in the albuminuria, but these have been controlled by further courses of proseptasine and there has been no return of œdema When last seen on Nov 21 the boy's urine was normal in every respect and his general condition was good.

DISCUSSION

The main difficulty in this case is to assess the part played by the *Bacillus coli* infection In the early specimens of urine there was no sign of infection and there seemed good reason for a diagnosis of nephrosis If the infection was the basis of the renal syndrome the pathology of the condition is somewhat obscure for it is difficult to picture any form of pyelonephritis without pyuria and without fever It seems more likely that the urinary infection was a secondary event which depressed still further the already ineffective renal function Proseptasine is not known to have any specific diuretic action, and it is presumed that the kidneys were able to regain their efficiency only when by the action of the drug the extra burden of infection was lifted

I wish to express my thanks to Dr H Gilling for permission to publish this case

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTION OF PHYSICAL MEDICINE

At a meeting of this section held on Jan 20, Dr. K. R Collis Hallowes, the president, took the chair and a paper on the

Physiological Aspects of Rheumatism

was read by Prof. Samson Wright. The whole problem of the mechanism of the sense-organs, he said, had been investigated recently by electrical means and certain principles established. The intensity of a sensation was associated with the frequency of nerve impulses The extent depended on the number of nerve-endings and fibres, and therefore the area of cortex activated The quality was difficult to account for, and depended on something unanalysable in the brain The sensory cortex "secreted" conscious sensation, as a gland secreted saliva Pain was thought to be a function of the thalamus or other subcortical areas Pain was a function in itself, not a degree of intensity A complete description of a pain should include its severity, kind, relation to time, locality, and circumstances Lewis had described three kinds of somatic pain: from skin, muscle, and tendon respectively If brief, a skin pain was felt as a prick; if more prolonged as a burning sensation, irrespective of cause. Muscle pain was continuous, diffuse, and difficult to locate; it could be produced experimentally by ischæmia, squeezing, or injecting certain solutions. It might be referred. The pain of tendons, fasciæ, and periosteum could be produced by pinching the web between the fingers Diffuse pain could be relieved by injecting solutions into localised tender spots

Ischæmic pain rapidly became intolerable It was not due to spasm of blood-vessels or to muscular tension. It was produced by activity. Probably it was due to some chemical product—the pain-factor metabolite—formed under conditions of anoxæmia *during muscle activity. Products* of muscle injury might be important in relation to massage. When a muscle contracted, glycogen, phosphagen, and adenyl pyrophosphate all broke down, and the breakdown of glycogen was by no means essential to contraction, fatigue, and rigor. Many other unknown reactions occurred. These three breakdowns were anoxæmic, but oxygen was required for the combustion of lactic acid, fat, and other foodstuffs, and for the re-formation of glycogen. Muscle activity or damage liberated the choline or acetylcholine, histamine, adenosine, the P (pain) factor of Lewis, the factor of Smirk (which produced reflex rise of blood-pressure and pulse-rate), and a pressor substance Choline, histamine, and adenosine were all vasodilators All these factors might produce both local and distant effects.

The flow of fluid to and from capillary and tissue spaces depended on the balance between capillary blood-pressure and the osmotic pressure of the plasma proteins Metabolites might be osmotically active and suck fluid into the tissues Only a small proportion of tissue-space fluid entered the lymphatics, which were not believed to play much part in tissue exchange. The tissue changes accompanying muscle contraction all favoured more extensive exchange In an active muscle 2 c cm of fluid per 100 g. of muscle might exude per minute Apart from contraction, flow of fluid into muscle spaces was encouraged by giving saline or water, by mouth or any other route Saline lasted much longer in the body than water. Fluid was removed from the muscle spaces by sweating or any fluid-loss Remarkable claims were made in books on massage, and needed physiological investigation Very light superficial stroking caused an active contraction of local capillary walls, unrelated to any nerve-supply More vigorous stroking would provoke varying degrees of vasodilatation Firstly there was a capillary dilatation giving a red line, then a red flare due to arteriolar dilatation based on axon reflex; and thirdly a weal These reactions were due to histamine-production. If the stroking were centripetal the flow in superficial vessels might be accelerated, which might be of value if the circulation were impaired Stress should not be laid on any lymphatic effect The normal flow in a lymph vessel was very slow and was only increased by pathological changes or activity, massage was comparatively ineffective Little was known about skin metabolism, and speculations as to the results of massage on it were idle There were few adequate clinical observations on the reflex effects, experimentally almost any effect could be produced by varying the circumstances In man the effects probably varied with the nature of the stimulation Deep stroking would produce greater results of the same kind The minute tissue damage caused by it might produce enough metabolites to bring about remote effects

Pressure, friction, and percussion movements also had great claims made for them They could not remove fat without causing serious tissue damage, and if the fat were removed it would only be deposited elsewhere Uric and butyric acid were said to be removed, but they were never found in muscle. Vigorous massage did not increase oxygen-consumption, carbon-dioxide output, or heat-production; there were no recognisable changes in blood or urine, nor evidence of improved muscle nutrition There was a slight increase in blood-flow, but this was very small compared with that produced by muscular activity. Blood-pressure might be altered by increasing venous return or causing capillary dilatation in the muscle. It was doubtful if any effect would be produced on denervated muscle Stretching produced reflex contraction or relaxation according to the force used, and also distant reflex changes Reactive hyperæmia by arterial obstruction perhaps deserved more extensive use in this country. The higher the external temperature and the longer the occlusion the greater and more prolonged the effect The hyperæmia was comparable with that obtained fro a period of activity. Similar effects followed veno obstruction The hyperæmia was accompanied b capillary and arteriolar dilatation, and increas of pulse-volume and temperature, probably due t release of metabolites produced in the occlusive peri Tissue-fluid interchanges must undoubtedly b increased

Artificial hyperpyrexia was increasingly used, brought the patient very near the limit of toleran An insulated man's metabolism was vigorous enou to raise the body temperature 2° per hour, corresponding steel body would rise 16° in an ho Insensible perspiration was not due to sweat-glands all; it was most marked on the palm and sole almost negligible on the body, apart from the

Sweating from the palm and sole was negligible and chiefly occurred from the forehead, back of hand, and chest Heat-loss was primarily due to sweating and evaporation The electropyrexial technique was said to produce a smaller increase in pulse rate than other methods, 4000 or 5000 c cm of sweat might be lost in 4 or 5 hours The pulse rate might rise to 160 per minute The blood-pressure might rise or fall, the diastolic pressure might even fall to zero, and this must seriously embarrass the heart Cardiac accidents were not surprising Respiration might become irregular with long bouts of apnœa and even arrest A marked alkalæmia occurred Water loss, uncompensated by administration of saline, might cause increase in viscosity and concentration, and in the red cell and hæmoglobin content, and other serious changes

Dr W KERR RUSSELL said that four methods of artificial hyperpyrexia had been tried at the National Temperance Hospital Nebulised hot water was now being used and patients much preferred it—probably because there was so much less sweating Tetany had occurred on one or two occasions with the earlier methods—undoubtedly due to chloride loss—and there had also been trouble with cramps and indigestion due to chloride loss The new method had stopped all these and relieved all fear of burns Six hours at 106° F could be tolerated

Dr J C BUCKLEY thought an accurate datum line of normal physiology was essential in the estimation of therapeutic results He asked whether Prof Wright could throw any light on "fidgets" a sensation, chiefly felt in the calf, when trying to get to sleep, that one must "do something" with a muscle Was it a minor form of ischæmic pain? It came on when the muscle was at rest and was relieved by exercise He profoundly disbelieved in "the rubbing away of fibrous nodules", that was an example of mistaken conclusion The only "nodules" that could be rubbed away were local areas of spasm A Bier's bandage invariably produced a rise of general-body temperature, was this result due to mild autoinoculation or to products of normal metabolism?

Sir WILLIAM WILLCOX said that if the application of physical medicine did not agree with physiology there was something wrong with it In practice massage suitably applied by a suitably chosen masseuse did an enormous amount of good Much more importance was attached to the lymphatic system on the Continent Attention should be more directed to the dangers of hyperpyrexia, convulsions commonly occurred, and even hemiplegia might follow He doubted whether it were wise to practise hyperpyrexia in an outpatient department without beds

Prof GEOFFREY HOLMES pointed out that text-books of physiology were not very helpful to the physiotherapist who wanted to keep up to date He asked for an explanation of the pain of acute lumbago, and of its instant relief by efficient strapping

The PRESIDENT asked whether susceptibility to stiffness were due to peculiarities in the rheumatic subject It responded well to heat, massage and douches

Prof SAMSON WRIGHT, in reply said he did not know why he had *benefited* from massage and preferred no reason to facile and pseudoscientific ones "Fidgets" and stiffness would be interesting subjects *for research* Few of the phenomena in muscle could as yet be explained

SECTION OF NEUROLOGY

AT a meeting of this section held on Jan 19 with Dr J G GREENFIELD, the president, in the chair, a discussion on the

Neurological Complications of Pregnancy

was opened by Dr W RITCHIE RUSSELL. He admitted at the outset that these conditions were nearly all very rare They were, however, interesting because the accurate diagnosis might be difficult, their occurrence during pregnancy might throw light on their ætiology, and the effect of pregnancy on an established disease was important Coma presented a difficult problem in diagnosis when the patient showed no signs of eclamptic toxæmia Many of these patients were found post mortem to have vascular lesions of the brain, but all the possible causes of coma must be kept in mind and a full investigation made without delay Recent studies of the circulation in eclampsia emphasised an abnormal tendency to vascular spasm, which might explain many of the cerebral and retinal changes Another cause of coma might be Wernicke's encephalopathy, and investigators had pointed out a frequent association with hyperemesis gravidarum Some combination of deficiency factors might be responsible Chorea gravidarum seemed to be identical with rheumatic chorea but the infection did not account for all the symptoms, some metabolic or deficiency factor must be concerned The various deficiencies of pregnancy offered a fruitful field for research Polyneuritis usually responded to vitamin B_1 Severe polyneuritis gravidarum was uncommon, but the earliest symptoms—tingling and numbness in the extremities and loss of appetite—were not infrequent A high carbohydrate diet increased the body's requirement of the vitamin Pressure of the fœtal head on the pelvic nerves in later pregnancy often caused discomfort or traumatic neuritis, which showed itself in motor, sensory, and nervous disturbances When the paralysis and sensory loss affected only the lower leg the neural damage was most probably not in the pelvis but caused by pressure on the common peroneal nerve or the tibial nerve near the popliteal fascia Such patients recovered gradually over several months Infection of the pelvic tissues might cause severe and painful neuritis and weakness in the legs

Dr H L SHEEHAN, summarising the results of a large number of autopsies on obstetrical patients said that one of the main diagnostic difficulties was caused by patients admitted with coma or convulsions and labelled as eclampsia Meningitis was commoner than might be expected, and was mainly meningococcal Cerebral embolism was always due to acute endocarditis The symptoms were sudden coma and hemiplegia without fits Some cases of epilepsy went on to fatal status epilepticus Epilepsy closely imitated eclampsia and probably accounted for many recorded cases in which there had been frequent fits Eclamptic lesions were never found in the brain or organs Small cortical gliomata might produce fatal epilepsy Of greater interest was puerperal thrombosis, which included cases in which the thrombosis occurred in the meningeal veins where they entered the superior longitudinal sinus The thrombosis produced an area of softening in the cortex an inch or two in diameter After a normal delivery and puerperium with no clinical evidence of sepsis, the patient would suddenly, between the third and the tenth day develop fits and coma This condition accounted for nearly all the reported cases of late eclampsia. The last and by far the largest group consisted of hæmorrhages and softenings. Patients who died of eclampsia, or of coma supervening on pre-eclampsia, usually had no gross cerebral lesions. Congestion or œdema of the brain must be viewed with suspicion, because they were often artefacts of the autopsy. In over a third of the eclampsias and pre-eclamptic comas, cerebral hæmorrhages or softenings could be recognised with the naked eye. Microscopically there were thrombi in some of the capillaries, which gave a fibrin-staining reaction but were peculiarly colloid in their appearance. These lesions appeared to be secondary to some gross vasomotor disturbance in the cerebral vessels accounting for the convulsions and coma but not sufficient in most cases to give rise to hæmorrhage or softening. If these occurred the eclampsia was probably fatal whatever the degree of the cerebral lesions.

Diagnosis was very difficult. Severe cyanosis suggested a large pontine hæmorrhage, and an unvarying hemiplegia suggested a lesion in one side of the hemisphere. Death in cases of hyperemesis was due to abortion or postoperative shock, or to a peculiar cerebral syndrome. There was about seven weeks of severe vomiting, which stopped suddenly, the pulse-rate remaining high. The patient became apathetic, developed nystagmus and tenderness of the leg muscles, and, after a short period of mental confusion, died in coma. The condition was so clearly cerebral that it was sometimes diagnosed as encephalitis. The question whether Wernicke's lesion was responsible for these deaths would only be answered when further studies had been made in the light of recent knowledge of where to look for the lesion.

Dr. REDVERS IRONSIDE described four types of neuritis, of which the first was associated with achlorhydria but not with toxæmia, began with the fifth or sixth month, and was sometimes accompanied by Korsakoff's psychosis. It cleared up a variable time after delivery. Differential diagnosis must be made from the effects of alcohol and abortifacients. Polyneuritis following hyperemesis gravidarum was a rare and dangerous condition. The symptoms were similar to those of any other toxic polyneuritis. Vomiting was severe and incessant at first but might abate before the onset of the polyneuritis, leaving a latent period of one to three weeks. The patient's helplessness might be wrongly ascribed to prostration. Usually the highest terminals of the nervous system became involved when Korsakoff's psychosis appeared. Tachycardia was almost always present, with bulbar signs or respiratory paralysis in the gravest cases. Nystagmus was especially characteristic and might be accompanied by unilateral or bilateral nerve-deafness. The condition cleared up speedily after parturition. Achlorhydria was often reported. Some work had been done on the estimation of vitamin-B_1 excretion, but was handicapped by the absence of a satisfactory method of assay. The evidence for deficiency of the vitamin was slender and the symptoms of it were never comparable to the acute cardiac death of pernicious beriberi, nor to the massive œdema of the wet forms. The infant did not appear to suffer from disquieting symptoms. Pregnancy could not be the cause of the syndrome, because there was no firm temporal relation between the two. The mortality was very high. The polyneuritis would often recur with each pregnancy.

The fourth variety of polyneuritis complicating pregnancy was parturitional paralysis due in part to pressure of the fœtal head on the fourth and fifth lumbar roots, or pressure on the peroneal nerve by the strap hitching up the knee on the obstetrical table; or traction on or trauma of the lumbosacral plexus. The condition was very rare.

Dr. H. G. GARLAND dealt with neurological problems other than those directly resulting from pregnancy. Inherited conditions might be divided into those in which the inherited factor was predominant, and those in which the causal factors were multiple. An elementary knowledge of mendelism was essential. Certain conditions were inherited as simple dominant abnormalities. Probably all the children of a parent with Huntington's chorea should be advised against marriage, though half of them would in fact be normal. Hypertrophic polyneuritis was inherited in the same way, but was usually not very severe and did not appear to increase in severity with succeeding generations. Von Recklinghausen's disease introduced the difficulty of great variation in severity. Progressive muscular atrophy, certain cases of myopathy and dystrophia myotonica, and probably also familial periodical paralysis were also heritable, but the chance of inheritance was only one in four. In sex-linked conditions the difficulty of prognosis for offspring was much greater. Certain less well-defined conditions were inherited, but the exact mode was not clear—e g., epiloia.

An entirely different problem was raised when the inherited factor was only one of several, as in migraine and epilepsy. The tendency to attacks of migraine was certainly a simple dominant, but migraine was probably never so severe in itself as to constitute a eugenic problem. On the other hand, all neurologists agreed that there was an inherited factor in epilepsy. If a patient suffered from fits of the idiopathic type and his family history showed no epilepsy, and he had no consanguinity with the woman he proposed to marry, the risk of transmitting a tendency to epilepsy was probably negligible. If migraine was associated with epilepsy in the family history, the risk might be two-thirds as great again as if the family history showed only epilepsy. Disseminated sclerosis was the most important of the neurological conditions which might be aggravated by pregnancy, for pregnancy sometimes precipitated the onset, and more often increased the disability. A relapse apparently due to pregnancy was sometimes, however, followed by spontaneous remission. Termination of pregnancy might cause as much damage as labour, and the best treatment was probably complete rest. Hypopituitary syndromes were usually associated with chromatophobe adenoma with increased intracranial pressure, but sexual function might remain normal in the presence of suprasellar adenoma. Similarly, menstruation and pregnancy might occur after operation for acromegaly, and exacerbate the symptoms. Amenorrhœa was usually a striking feature of pituitary basophilism. Sympathectomy had been found to cause an unusual incidence of abortion and stillbirth in cats; the possibility of bilateral lumbar sympathectomy producing a similar result in women should be borne in mind.

DISCUSSION

Mr W. C. W. NIXON confirmed, from his experience in Hong-Kong, the infrequency of polyneuritis due to lack of vitamin B_1 in pregnancy, although the incidence of wet beriberi among parturient women in his clinic was 30 per cent. Dry beriberi appeared to break out six or eight weeks after delivery.

Dr. H. M. SINCLAIR referred to an article published about a year ago in the Hong-Kong University medical journal which stated that a large proportion of women had shown a definite connexion between beriberi and pregnancy. Acute cases of vitamin B deficiency were generally marked by cardiac symptoms Only when a deficiency had existed for some time were neuritic symptoms prominent The pregnancy itself was more important than the high carbohydrate diet Capillary hæmorrhages were not found in vitamin B_1 deficiency Injection of the pure vitamin was dangerous, and it should rather be given in the form of a yeast preparation

Dr J Purdon Martin considered that the clinicians at the meeting had not spoken on the same subjects as the pathologists He doubted whether, apart from hyperemesis, there is any such thing as a polyneuritis of pregnancy, or whether the incidence of polyneuritis is greater in pregnant women than in the general population Gestational foot drop was one of the commoner complications, and the explanation by pressure on the nerve roots was not altogether satisfactory Unless chorea gravidarum was severe, the physician should temporise and try treatment before considering abortion He would have considered subarachnoid hæmorrhage more likely to occur in pregnancy than at other times The severe vascular lesions causing hemiplegia and paraplegia were usually associated with high blood pressure, which was probably a pre eclamptic condition The cause of paraplegia during pregnancy was generally disseminated sclerosis In an interesting group of cases convulsions occurred after delivery and left a hemiplegia three out of four patients had made good recoveries and in the fourth case autopsy had revealed a thrombosed vein He had seen only two cases of visual disorientation both in women recently confined It did not seem to arise from arterial lesions or tumours The delivery of patients with astic states was usually normal but somewhat pid

Dr Macdonald Critchley declared that tingling d pins and needles were extremely common in egnant women Hippocrates had described paralysis women in whom the lochia had been suppressed e agreed with the orthodox view that parturitional ot drop was due to pressure on the roots which ent to form the sciatic nerves within the pelvis ere was nearly always a history of relative disoportion between the fœtal head and the pelvis, olonged and difficult labour, and persistent occipitosterior presentation The reason why foot drop as the only sign of paralysis was that the nerve roots sted externally upon the unyielding ilium but ternally upon the soft musculus piriformis, and erefore only the external popliteal nerve suffered ascular accidents were almost an unwritten chapter neurology Disseminated sclerosis was a positive dication for terminating pregnancy in the first ree months, but afterwards the trauma of artificial bortion was greater than the probable injury of a onfinement Postencephalitic parkinsonism was, owever, an absolute indication for terminating regnancy

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> “ A policy for defence must take account of cial welfare as well as of armament production and vil defence National fitness in the widest sense is an dispensable element in national defence Wisely conived a policy for defence will take account not only of hysical training nutrition, overcrowding, unemployment, nd other factors affecting the health of the nation It ill have regard also to many of the amenities of life which etermine the mental and moral as well as the physical tness of the people”—Leading article *Nature Lond* an 21, 1939, p 91

MEDICAL SOCIETY OF LONDON

At a meeting of this society on Jan 23, with Dr C E Lakin, the president, in the chair, a discussion on

Poliomyelitis and Artificial Aids to Respiration

was opened by Sir Henry Gauvain He referred members to a publication of the public health committee of the London County Council for detailed and valuable information on the subject The treatment of anterior poliomyelitis should, he said, be carried out by orthopædic surgeons Early acute cases treated with skill from the onset had the greatest chance of recovery Mobilisation of paralysed muscles and relaxation should be enforced from the start Splints should be applied immediately, for contractures developed rapidly and damage to paralysed muscles was often irreparable There had been an unusual number of cases in 1938, with a high incidence of respiratory failure His hospital had admitted 87 cases, 35 of them less than a month from the onset Of these, no less than 7 had been treated in a respirator of the Drinker or Bragg Paul type He gave details of these cases, of which 2 had been fatal one patient was a woman of 37, who died with severe hæmorrhage of internal organs, and one had developed epileptic fits and died in status *epilepticus* Two other patients had made good recoveries from their respiratory paralysis, but satisfactory splinting could not be obtained in the Drinker apparatus

Sir Henry gave a summary of the rules for nursing respirator cases, drawn up by his sister in charge of respirator treatment, Miss Hadley All pressure points should be padded with cotton-wool. The patient wore a nightgown opening down the back, and a collar, made of a double thickness of lint well greased, to prevent abrasion from the rubber diaphragm of the apparatus An electrical sucker should be fitted to remove mucus from the throat If the patient were wearing a back splint, a tin shoe should be applied If the arms were paralysed, a long hand splint should be fitted, with extra padding at the wrists The bedpan should be of rubber, well padded, and was handed through a large port in the apparatus When the patient was to be withdrawn for nursing and treatment, everything should be ready and good team work was essential He should be reassured and the process explained to him He must be persuaded to make an effort to breathe, for the respirator had a strong psychological effect the patient was often terrified of it at first but was afterwards equally terrified of losing its protection The motor should be left running while he was withdrawn. In the early days he should be given oxygen continuously through nasal catheters while the back and pressure points were being treated As the condition improved, his time outside the respirator should be increased, but bathing should not be attempted unless he could remain out of the respirator for a quarter of an hour. A respiration chart should be kept Perspiration was the first sign of respiratory distress He should be encouraged to sleep while outside When he was able to stay outside for three or four hours he could be placed on a bed beside the apparatus in the ordinary position and his neck piece could be removed and the motor stopped. When he could stay out all day he should be taken out for the whole of a second day, but on the third day left in the respirator and only withdrawn for treatment If the condition was satisfactory, the apparatus could be dispensed with all night, the sound of the motor had a reassuring effect The patient was fed through a pipette if he could not suck, and as he recovered the diet was gradually strengthened A fluid-intake chart should be kept In catheterising for retention of urine everything should be ready beforehand, and if the patient showed cyanosis he should be returned to the respirator for a few minutes with the catheter in place

Sir Henry expressed the general gratitude to Lord Nuffield for his gift of a respirator to every hospital, but pointed out the necessity for a team who were ready and available at all times and could use it properly. If the respirator were handled unskilfully, the child would probably die The apparatus required careful maintenance when not in use Acknowledging the courtesy of the Nuffield Trust, he showed films illustrating several types of apparatus for the mechanical production of respiratory movement. Total enclosure apparatus was represented by the Drinker and the Both machines The Bragg-Paul Pulsator was a pneumatic jacket for applying rhythmic positive pressure; Sir Henry said it was very convenient and effective The Burstall applied negative pressure and resembled a cuirass The Biomotor, a German apparatus, was a large helmet which was strapped to the abdomen and inflated the lungs by applying rhythmic negative pressure Other apparatus included the tilting stretcher, on which a prone patient could be rocked through an angle of 45° each way, respiration being brought about by the movement of the abdominal contents Simpler methods were to roll the patient backwards and forwards on a wine-barrel, and to lift and lower him rhythmically by means of a sling slipped under the abdomen in the prone position Oxygen cylinders could be fitted with masks of the anæsthetic type and a control valve operated mechanically or by hand, as in the McKesson or the Oxford apparatus

Dr. C. P. SYMONDS spoke of problems of diagnosis, treatment, and prevention He explained the differential diagnosis of poliomyelitis from acute febrile polyneuritis, in which the paralysis developed more slowly and was more symmetrically distributed, and there was some evidence of sensory involvement—usually paræsthesiæ Recovery was always complete unless death took place from respiratory paralysis in the early stages. Some of the reported cases of complete recovery from infantile paralysis might have been wrongly diagnosed The diagnosis of poliomyelitis in the preparalytic stage was extremely difficult except in an epidemic. The mental symptoms —restlessness, irritability, and stupor—might be more prominent than the fever, and suggestive of encephalitis. Paralysis was often preceded by symptoms of brain-stem involvement, including difficulty in swallowing fluids, nasal regurgitation, diplopia, and nystagmus Bulbar involvement might be shown by attacks of rapid respiration so prolonged as to resemble tetany. The cerebrospinal fluid in the early stages showed considerable variety but might be quite normal, and, if not, usually fell to normal rapidly. The protein, on the other hand, often continued to rise in the second week and might remain high until the end of the fourth week Serum treatment appeared to be actually harmful, and a carefully controlled study by W. H. Park in New York in 1921 had shown a result slightly in favour of the controls. Recently fresh claims had been made for serum treatment by orthopædic surgeons in this country, claims which unfortunately might lead the public to think that practitioners who did not use serum were either ignorant or lazy.

In Great Britain little was known about poliomyelitis and there had fortunately been next to no experience of its epidemic form. The virus here might be of a weak strain The disease was sometimes regarded as not very infectious, but this was a dangerous belief Dr Symonds gave examples of the ease with which the infection might be contracted, and repeated the recommendations of Sir Arthur MacNalty: patients should be isolated for six weeks and personal association with them limited to what was immediately necessary for proper care and nursing; and children in an infected household should remain away from school for three weeks after the isolation of the last patient. Age was the most important factor in natural immunity, and all nurses should be over 25 Indoor contact with persons under 21 should be avoided Kissing should be prohibited, and suspects should use paper handkerchiefs and burn them immediately. The infection was undoubtedly by droplets obtaining access through the nose and pharynx. These precautions should be applied to children returning to school where an outbreak had occurred On the first sign of the disease in a residential school all parents who could do so should remove their children by motor-car and adopt these precautions under the supervision of the family doctor. Children should not return until three weeks after the isolation of the most recent case He much preferred the Bragg-Paul apparatus to the Drinker, for its extreme simplicity and convenience to the nurses and because it was far less frightening to the patient

Mr. B WHITCHURCH HOWELL compared the present epidemic with that which had broken out in Essex in 1926 and which had not produced so many deaths from respiratory paralysis The present form was much more virulent and the permanent paralysis more severe He would put a child of his own, if it were conscious, in the Bragg-Paul respirator, which was very comfortable and allowed the orthopædic surgeon to splint all four limbs simultaneously A dramatic feature of the cases in both epidemics had been that immediately on mobilisation irritability had disappeared, the temperature had become normal, and the patient had slept The appetite had then reappeared and the general health, and eventually the muscle power, had started to improve. Suspects should be kept prone while there was doubt of the diagnosis. The incidence appeared to be high in mid-winter as well as towards the end of summer Care should be taken not to remove a patient from the respirator too soon, Mr Howell had known of a recent death from this mistake He asked whether the physician or the nurses wore masks when in contact with the patient.

Dr. J B. WRATHALL ROWE asked whether an antiseptic should be applied to the nasal mucosa for prophylaxis or treatment

Mr D H KITCHIN referred to the work of F. C Eve on the tilting stretcher and to the recent report by J. A Kerr of a case of poliomyelitis with respiratory paralysis treated on a tilting stretcher for nine days (*Lancet*, Jan 7, p. 24) The advantages claimed for the device were that it could be improvised where no electrical apparatus was available, and nursing was convenient He asked for an opinion on its merits compared with the Drinker apparatus

Dr S. SUZMAN asked what proportion of cases died in the Drinker or Bragg-Paul apparatus

Sir HENRY GAUVAIN, in reply, said that in his experience nearly every patient who had been placed in the respirator had been comatose Patients had been terrified on waking but had soon become reassured, and fear was therefore not important It was easy to place back-splints or tin shoes on a patient in a Drinker apparatus, and in the latest type the arms could be abducted He preferred light metal splints to plaster in the acute stages He had found the Drinker apparatus invaluable in his hospital A disadvantage of the Burstall negative pressure respirator was that it had to be kept in different sizes Patients in the Drinker respirator must be encouraged, and it was essential to have a sister who thoroughly understood the psychological difficulty and knew how to withdraw the patient His nurses wore masks and gowns, but he thought that a virus that would pass the finest filter could not be kept out by a mask, and did not wear one himself He did not consider that the tilting stretcher would be efficient in poliomyelitis, and its use by hand for prolonged periods would be impracticable

Dr SYMONDS, also in reply, could not agree that the mask was inefficient it would not stop a virus but it might stop droplets Without seeing the results of a full histological examination of the two cases which had died from internal hæmorrhage, he was inclined to question the diagnosis —Sir HENRY GAUVAIN assured him that this examination had been made, and undertook to send him the material

MANCHESTER MEDICAL SOCIETY

AT a meeting of the society on Dec 7, Dr A R SOMERFORD opened a discussion on

Gold Therapy

Some authorities may claim, he said, that they use gold salts in treatment without producing any untoward reactions but this is not the experience of most observers Some have noted reactions in as many as 45 per cent of their cases, though they were often mild Reactions may arise at three stages—within a few hours of the injection, including the so called grippe aurique, during the course of treatment, including urticarial, morbilliform, and scarlatiniform eruptions, or after the cessation of treatment, possibly several weeks later, and at this stage it is not uncommon to find evidence of blood, hepatic, or renal damage in addition to skin eruptions Reactions have been variously ascribed to hypersensitivity to gold, biotropism, the toxic effects of products resulting from the action of gold on the tissues, and faulty elimination by the kidneys due either to pre existing deficiency or to renal damage produced by the gold Whatever the cause, it is wisest to regard all reactions as signs of gold intolerance and to terminate treatment when even the mildest occur

In the prevention of reactions, Dr Somerford went on, the type of gold salt used or its method of administration seems of little importance Calcium gluconate glucose, and whole liver extract given simultaneously with the gold therapy have been found to reduce the incidence of toxic symptoms Repeated examination of the urine for signs of renal damage is most important It has been suggested that the gold acts as a catalyst and that equally good results may therefore be obtained with small as with larger doses The results of gold treatment are encouraging but it must be remembered that serious symptoms and even death may result from injudicious dosage or lack of attention to mild symptoms of possibly toxic origin

Dr NORMAN KLETZ briefly reviewed the history of gold as a therapeutic agent in pulmonary tuberculosis and later in other conditions It is interesting, he said, that its use in rheumatism was suggested by the analogy between the life histories of tuberculosis and arthritis. While our knowledge of the pharmacological action of gold is limited, many of its toxic effects are well known These may be divided into (*a*) specific gold reactions, such as general malaise, pyrexia, and local response in the brain; (*b*) local damage at the site of injection, and (*c*) effects on the digestive tract (anorexia, nausea, vomiting, diarrhœa, stomatitis), the skin (variable, localised, or general), the kidneys (albuminuria, sometimes nephritis), the blood (action on the bone-marrow producing aplastic anæmia, agranulocytosis, or thrombocytopenic purpura), the liver (hepatitis), and the nervous system (peripheral neuritis, mental symptoms, or epileptiform attacks)

Discussing the importance and non assessability of idiosyncrasy, Dr Kletz said that small dosage and short courses with a long interval between them minimised the dangers When once toxic symptoms have developed, it is doubtful if any effective radical treatment is possible, and treatment can only be symptomatic

Gold therapy is likely to be effective, he said, in primary or secondary rheumatoid arthritis and spondylitis ankylopoietica It is ineffective in fibrositis and also in osteo arthritis except when there is a superimposed infective factor In 103 cases that Dr Kletz reviewed toxic reactions were rare and on the whole not severe There was one death from thrombopenia and spontaneous hæmorrhage, and one case of severe hepatitis which recovered Assessment of results was difficult In a considerable number of cases the improvement was almost miraculous, and in very few was there no material improvement The general conclusion was that gold therapy is the most valuable weapon we have in the treatment of certain types of arthritis It is, however, a dangerous weapon and only to be employed by those willing and able to control its use by adequate clinical and laboratory observations

In the discussion emphasis was laid upon the importance of care in dosage, a careful watch for signs of intolerance, efficient control of the treatment—preferably in hospital with regular blood investigations—and the need for a full consideration of each patient's condition before beginning gold therapy

THE LANCET 100 YEARS AGO

January 26, 1839, p 672

From a lecture by Michael Faraday at the Royal Institution on electric fish

The electric power exhibited by these animals, Mr Faraday said, was in the direct ratio of the nervous influence exerted by the animal The electric action like muscular action, was followed by exhaustion It was after the exhaustion of the animal by repeated discharges that in South America the gymnotus was taken As the fatigue wore off they gradually recovered their electric strength "It is thus evident" quoth the lecturer "that nervous power may be converted into electric power, as clearly as that electricity may produce heat Why may not the converse of the experiment be true, and nervous influence be generated from electricity, as electricity, after producing heat, may again be reproduced from heat" I have no doubt that the nervous power is as material as heat, light or electricity, and is conducted along the nervous fibrils in the same manner as water gas or the electric fluid is carried through pipes or conducting wires "

REVIEWS AND NOTICES OF BOOKS

Physiology of the Nervous System

By J. F. FULTON, M.A., D Phil. Oxfd, M.D. Harvard, Sterling professor of physiology, Yale University; formerly fellow of Magdalen College, Oxford. London: Humphrey Milford, Oxford University Press. 1938. Pp. 675. 25*s*.

Prof Fulton has written a book which, to use his own words, is designed to bridge the gap between the concepts of neurophysiology and the problems of clinical neurology. He is well equipped for this task since he has been successively an assistant to Harvey Cushing, a member of the Oxford school of physiology, and professor of physiology at Yale University, and his own contributions to the experimental physiology of the nervous system are important.

A book such as this is likely to be either predominantly physiological or predominantly clinical This is the former, and for this reason it will be of greater value to the advanced student of neurology, who if he is supplied with physiological facts can appreciate their clinical applications, than to the beginner. All the functions of the nervous system that are common to man and the experimental animal are described in relation to their anatomical basis, the only conspicuous omission being the humoral transmission of the nervous impulses at the myoneural junction. Prof Fulton characteristically introduces each chapter with a valuable historical note, so that the book includes, almost as an aside, a history of neurophysiology The exposition is everywhere clear and up to date and the book is well illustrated by diagrams There is a full bibliography containing over 1300 references, and the production and type are excellent. The book fills a real need and will be welcomed as much, if not more, by neurologists and physiologists as by students.

Practical Pathology

Including Morbid Anatomy and Post-mortem Technique. (3rd ed.) By JAMES MILLER, M.D., D.Sc., F.R C.P.E., professor of pathology, Queen University, Canada; and JAMES DAVIDSON, M.B, F.R.C.P.E., director of the Metropolitan Police Laboratory, London. London · A. and C. Black. 1938. Pp. 518. 25*s*.

THE first and second editions of Prof Miller's book were handy little volumes, admirable in connexion with museum study, and cost about half a guinea; the third, in which Dr. Davidson has collaborated, is much larger and costs almost as much as a standard textbook of pathology, but the preface states that it "in no way attempts to supplant the larger textbooks" Longer than is usual for a book of pure morbid anatomy it lacks the theoretical approach of a textbook. Moreover being arranged under organs and not diseases it does not serve the purpose of describing post-mortem appearances. There are also signs that the revision has not been quite thorough The old classification of nephritis is adhered to, ending with a chronic interstitial variety. Hæmochromatosis and scurvy are included with the diseases of the blood, and there is no mention of fat necrosis of the breast, pulmonary fat embolism as a cause of death following injuries, or of the characteristic bilateral softening of the caudate nucleus found in delayed carbon-monoxide poisoning. The section on the medicolegal autopsy, however, is excellent, particularly the part dealing with the examination of the fœtus and newborn child. Standard histological methods are soundly described in an appendix, though there are trifling inaccuracies.

Both authors and publishers must be congratulated on the fine half-tone illustrations, and the colour photographs of specimens are some of the best yet published

Yearbook of General Medicine

Infectious diseases, edited by GEORGE F. DICK, M.D. *Diseases of the chest*, by J. BURNS AMBERSON, Jun, M D. *Diseases of the blood, blood-forming organs, and kidney*, by GEORGE R. MINOT, M D, and WILLIAM B. CASTLE, M D. *Diseases of the heart and blood-vessels*, by WILLIAM D. STROUD, M.D. *Diseases of the digestive system and of metabolism*, by GEORGE B. EUSTERMAN, M.D Chicago. The Yearbook Publishers; Londo H. K. Lewis and Co. 1938. Pp. 340. 12*s*. 6*d*.

THE yearbook series is probably less well known England than it deserves to be. The Yearbook Medicine, which is under particularly distinguish editorship, is uniform in style and standard with predecessors It is of handy size, and conta abstracts of the most significant papers of the ye with the briefest of editorial comment The abstra are unusually long and full and many of them illustrated, so that they give a very fair impressi of the papers they represent Those who wish keep abreast with advances in medical thought w the minimum outlay of trouble will find the bo well worth their attention.

Major Endocrine Disorders

By S. LEVY SIMPSON, M.D. Camb., M.R C physician to Willesden General Hospital; assista physician, Princess Louise Kensington Hosp for Children; consulting physician to the So Hospital for Women. London: John Bale Med Publications. 1938. Pp. 184. 10*s*. 6*d*.

THE aim of this small volume is to supply physici and examinees with the essentials of the clin features and treatment of certain of the major end crine syndromes Some of the material has alrea appeared in medical journals and is based on lectu which the author has delivered

Emphasis is laid on the polyglandular nature endocrine disorders Dr. Levy Simpson rightly poi out that the clinical manifestation of each syndro is usually incomplete, but his argument that the la of some characteristic sign or symptom need therefore lead to diffidence in diagnosis may strength the dangerous temptation to make an endocr diagnosis on too slender grounds The photogra which illustrate the book are excellent, and ha obviously been chosen with considerable care Th have too the great merit of originality In wor on this subject there is often a tendency to borr illustrations from existing publications, so that features of one or two sufferers come to be regard as the prototype of some particular syndrome, a students and practitioners refuse to accept a diagno unless the patient resembles the classical illustratio A short discussion of menstrual disturbances has be included by request. Perhaps, for a book of t nature, undue prominence is given to climacte disorders, and interesting as it may be to trace t likeness of Cushing's syndrome to certain men pausal manifestations this has the effect of magnify the grossness of menopausal signs and sympto which are usually relatively trivial.

While Dr Levy Simpson's book is a valuable contribution to the literature of clinical endocrinology, it should be clearly understood that he has not attempted to write a standard textbook The work will be of particular interest to the general physician who comes in contact with a fair number of cases of endocrine disorder, and whose interest in the subject has thus already been stimulated

A Manual of Reparative Plastic Surgery

By J EASTMAN SHEEHAN, M D, F A C S, professor of plastic surgery New York Polyclinic medical school and hospital London Humphrey Milford, Oxford University Press 1938 Pp 311 30s

IN this beautifully produced book the author offers "an up-to date statement of the service to be had from the tissues of the body" Part 1 is confined to general principles and gives an indication of the merits of each type of repair, while part 2 shows how the basic principles of repair are applied to different parts of the body Dr Sheehan speaks with great authority on this branch of surgery and his book gives a clear idea of its scope In this country a great part of the section dealing with operations on the cornea, the eye muscles, and the nasolacrimal system would be considered as entirely in the province of the ophthalmologist Some of the phraseology is rather stilted, for instance, *tears* are "the fluid emanation of the lachrymal gland" and an artificial eye a "simulated eyeball" A few loose statements have also been allowed to pass In dealing with cleft palates we are instructed to continue the dissection "upward to the base of the brain" and later "to separate the (palatal) bone from the adjoining maxillary process," after the hamulus has been broken off 'to release the tendons of the palate" It is a pity that such blemishes have been allowed to mar a book that otherwise throws much light on an admittedly difficult subject

Treatment of Fractures

(11th ed) By CHARLES LOCKE SCUDDER, A.B, Ph B, F A C S, consulting surgeon to Massachusetts General Hospital London W B Saunders Co 1938 Pp 1208 55s

Dr Scudder's well known book has been entirely rewritten, and has been enriched by many chapters on special fracture problems by surgeons who speak with authority The book is based on the views and teaching of the fracture service of the Massachusetts General Hospital and as would be expected is eminently practical Obsolete methods have been omitted and for each fracture the treatment which the author has found most satisfactory is described in detail, while alternatives are only briefly mentioned The result is a pleasantly readable book, but such selection has certain disadvantages For example, in dealing with fractures of the neck of the femur the author advises the use of steel internal fixation when possible but the only method described is that of Moore by the multiple nail method although this is stated to have been in use no more than three years Again, in the chapter on open or compound fractures the Carrel Dakin treatment is described at length but no mention is made of the principles or technique of the Winnett Orr method At the end of this chapter there is a casual statement that should be deleted in future editions "the accurate open reduction and plating of a compound fracture in addition to the use of the Carrel Dakin method tends towards rapid union without infection" Those with memories of the late war will recall the many disasters which followed a similar line of thought and action The chapters on pathological fractures by Dr T W Harmer and Dr C F Geschickter, and on fractures of the facial bones by Dr Kazanjian and Dr Thoma, are beautifully illustrated and written with the distinction that we should expect from authors of their experience

The illustrations throughout are plentiful, apposite, and finely reproduced Taken as a whole this book is as exhaustive and detailed an account of fractures as could be wanted

Alcohol and Human Life

(2nd ed) By COURTENAY C WEEKS, M R C S London H K Lewis and Co 1938 Pp 451 6s

THIS is partly a revision of "Alcohol and the Human Body" (*Horsley and Sturge*), published many years ago In the main it is a detailed compendium of the effects of alcohol upon the physiological processes of the body Chapters however are also devoted to the relation of alcohol to road traffic, its effect on national life, its consideration as a racial poison, its influence on the duration of life, and narcotics and narcosis While the data may be accepted as valid the author's deductions from them are often debatable The psychological aspect is hardly touched upon and alcohol is wrongly stated to be an aphrodisiac The book may be useful for reference

Evolution of Obstetric Analgesia

By ANDREW M CLAYE, M D Leeds, F R C S, F R C O G, professor of obstetrics and gynæcology, University of Leeds with a chapter by W STANLEY SYKES, M.B Camb, D A, hon anæsthetist to the General Infirmary, Leeds London Humphrey Milford, Oxford University Press 1939 Pp 103 6s

THE author states in his preface that his book is chiefly designed to fill the gap left in works on obstetric analgesia by their omission of any account of the history of the process Actually he has done more than fill this gap, for his excellently written little book also gives a first rate description of the method which most appeals to him—namely, twilight sleep In its true form this method demands the constant presence of the obstetrician and that has long been recognised as its great drawback from the general practitioner's point of view Dr Claye is fully aware of this and states clearly that "on the whole, methods of twilight sleep are unsuitable for the conditions of general practice" How very satisfactory they can be when properly conducted in an institution many records in these pages show The author's own preference is for a twilight sleep brought about and maintained by the combined use of Pernocton and scopolamine

Dr Claye regards the barbiturates generally as of great value in obstetric practice and approves the Nembutal and chloral hydrate combination recommended by J V O'Sullivan and W W Craner (*Lancet* 1932, 1, 119) His method with pernocton is to inject usually from 4 to 5 c cm into a vein at the bend of the elbow The injection is made slowly—i e, at the rate of 1 c cm in two minutes As soon as the patient is asleep the needle is withdrawn and the dose noted Immediately afterwards a small dose of scopolamine is given hypodermically This first dose of scopolamine is gr 4/1000 or 5/1000 Half an hour later gr 2/1000 or 3/1000 is given unless the patient appears wakeful sooner. A memory test is carried out after the second dose. Approximately hourly doses of gr. 1/1000 to 5/1000 are required but of course there is much individual variation. Some restlessness is usual and in some cases the efficiency of the second stage pains is certainly impaired. Chloroform in minimum doses has been given towards the end of the second stage in most of the cases to check restlessness After delivery the patient usually sleeps for several hours.

Dr. Sykes's chapter gives a brief account of recent developments in obstetric analgesia by inhalation, such as Minnitt's gas-and-air analgesia, without attempting any detailed description of how to employ the methods enumerated. The whole book is written with care and judgment, and it can be cordially recommended to all interested in the subject.

British Journal of Surgery

The January number of this journal contains the following articles.—

Evolution and Development of Surgical Instruments. By C. J S Thompson (R C S Eng) This, the sixth article in the series, contains illustrated descriptions of headsaws dating from the twelfth to the early nineteenth centuries, and also of Ambroise Paré's cutting compasses and of an early form of trephine

Relation of Lymphatic Vessels to the Spread of Cancer. By J H Gray (London) Intradermal injection of Thorotrast has been used to demonstrate the course and patency of the skin lymphatics, and evidence has been obtained in favour of embolic lymphatic spread of cancer and against permeation.

Intrapelvic Cysts, probably of Mesonephric Origin. By A. R H. Oakley (London) A case is described in which two pelvic cysts were discovered at operation in a man whose symptoms suggested an acute abdomen. The ætiology is discussed and some recent cases analysed.

Epidermoids arising in the Diploe of the Bones of the Skull By G F Rowbotham (Manchester) Two cases successfully treated by operative removal are described. Comment is made on the danger of the tumour from perforation of the inner table of the skull, and on its possible origin from failure of ectodermal cells to undergo neurogenic differentiation

Obturator Hernia its Ætiology, Incidence, and Treatment, with Two Personal Cases By Cecil P. G Wakeley (London) The anatomical relations of obturator hernia are fully demonstrated by reference to museum specimens The association of abdominal discomfort with pain down the thigh may allow preoperative diagnosis Taxis is dangerous The abdominal route is preferred for operation

Simple Non-specific Ulcer of the Cæcum By J R Cameron (Edinburgh) Although not perforated the ulcer in the case described gave rise to the symptoms of an acute abdomen Resection was successful The literature is summarised

Carcinoma of the Jejunum: Acute Intestinal Obstruction. By F Mitchell Heggs (Sheffield) Three cases are described, two of which were treated by resection and one by low gastrojejunostomy. The treatment of high intestinal obstruction in general is discussed

Two Cases of Sarcoma of the Small Intestine with Unusual Features By D. Lincoln Lewis (London) One case was a leiomyosarcoma and the other a lymphosarcoma In the diagnosis stress is laid on the presence of a movable mass, with occult blood in the stools and hypochromic anæmia

Adamantinoma of the Tibia By R Glyn Thomas (London). The growth, which was histologically quite typical, occurred in a girl of 19 It involved almost the whole tibial shaft, recurred after an extensive guttering operation, and eventually necessitated amputation.

Non-malignant Stenosis of the Œsophagus By G. Grey Turner (London) From an unusually extensive experience of the condition the author is convinced of the great value of repeated gentle and gradual dilatation by bougies Clinical accounts are given of various types of case and their management is critically reviewed.

Hypertelorism. Notes on Three Cases By H. P Pickerill (Wellington, N Z) The nasal bones are massively developed, with excessive width between the orbits, while the point of the nose is small and retracted. The appearance can be greatly improved by lengthening the columella combined with cartilaginous grafting to raise the bridge of the nose

The Hyperostoses in relation with the Meningiomas By G F Rowbotham (Manchester) On a review of 100 cases of meningioma, 23 of which developed hyperostoses, the author bases a description of three clinical types He concludes that there is no intimate relationship between the variety of the hyperostosis and the cell type of the meningioma. He regards the veins as the main route of spread.

A Leaking Non-specific Aneurysm of the Common Iliac Artery, with Effective Treatment by Wiring By W. Carleton Whiteside (Edmonton, Alberta). The symptoms were very severe pain and a pulsating swelling in the left iliac fossa

Volvulus of the Stomach ending in Perforatio By K. C Gharpure (Poona, India) A girl aged 8 yea suffered from nausea, vomiting, and left hypochondri pain for three days. Operation on the third day reveal generalised peritonitis. She died four hours aft operation

Volvulus of the Stomach associated with a Rar Form of Diaphragmatic Hernia By W. C Osma Hill and Milroy Paul (Ceylon) The condition had giv rise to symptoms of chronic pyloric obstruction in a chi aged 14 months Laparotomy proved fatal The stomac was rotated on its long axis and there was a paræsophage hernial sac

There are also three notes on rare cases.

British Journal of Children's Diseases

To the current issue (October–December, 193 Mr. C. P. G. Wakeley and Dr F R. B. Atkinson contribute a paper on acute intussusception in childre based on 121 cases which Mr. Wakeley had ha under his care at King's College Hospital, Londo and the Belgrave Hospital for Children during th years 1920–29. Of these, 83 (70 per cent.) were male and 38 (30 per cent.) females. The large majority (72 were under the age of one year, the youngest being female baby of three weeks and the oldest a boy o eight years. The types of intussusception were a follows: ileocæcal 67 cases, ileocolic 41, enteric (enteric and ileocæcal 5, enteric and ileocolic 2. Th four commonest symptoms were abdominal pain o sudden onset and great intensity, vomiting, and late the presence of blood and mucus in the discharge and of an abdominal tumour. There were 12 deaths (10 per cent)—In a paper on the causation of paralysis in diphtheria Dr. Ian Taylor states that during the first four or five weeks of an attack of diphtheria the paralyses are of the local type and that after a course of variable duration further and more serious paralyses develop in a comparatively rapid sequence. Dr. Taylor therefore suggests that pharyngeal and respiratory paralyses may be caused by a combination of the action of circulating toxin and local spread, neither of which acting singly could have caused sufficient damage to give rise to loss of function.—Dr J. Shafar contributes a paper on chorea and athetosis in childhood, in which he draws attention to the points of resemblance between the two conditions and discusses their ætiology.—In the concluding part of his article on exophthalmic goitre in children Dr. F. R. B. Atkinson gives in tabular form the details of 208 cases of Graves's disease in children under fifteen years of age published between 1851 and 1937.

The abstracts from current literature are devoted to nervous and mental diseases.

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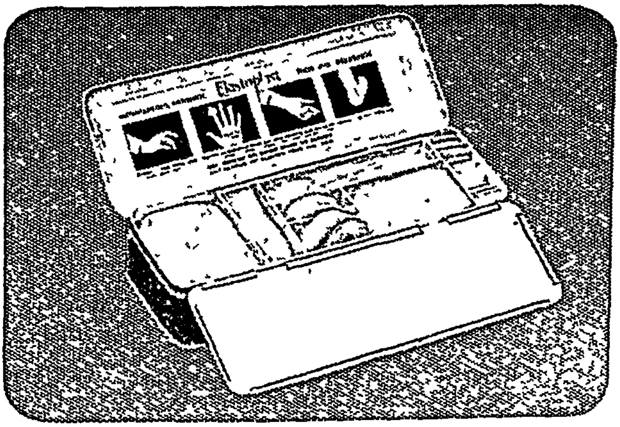

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THE LANCET

LONDON SATURDAY, JANUARY 28, 1939

BETWEEN FRIENDS

THIRTY TWO years ago a large number of English medical societies were fused in a new federal body, the Royal Society of Medicine. We had advocated this fusion for the sake of efficiency—because, like the promoters of federation, we believed that greater efficiency would increase the service rendered to the profession. That belief has been justified; but as the society has grown stronger for good it has also grown more intent upon its own interests. So far as we are concerned, the change began some years ago when we received notice that the society holds the copyright of all papers and addresses read before it and that these cannot appear elsewhere without leave from the editor of the *Proceedings*. The presumed object of this not unreasonable veto was to enhance the standing of the *Proceedings* both inside and outside the fellowship, and this we must believe is also the underlying purpose of the restrictions since placed on our publishing reports of the meetings of the various sections. Before reporting any meeting we must now ask permission, and such permission is being more and more often withheld—because the council of the section has decided not to admit reporters during the present month, because the section always prefers to meet in private, or because a particular meeting (sometimes on an everyday clinical subject) is being held in camera.

As journalists we hold strongly that the early and widespread dissemination of medical opinion is an important factor in medical progress and that such dissemination is desirable even at the cost of an occasional inaccuracy. We are prepared to collaborate in any arrangements that will prevent error while permitting expeditious and effective reporting, but we are not prepared to concur in a policy of exclusion. We recognise that private discussion is valuable and that various societies, clubs, and associations have been formed for this purpose; indeed one of the societies that joined the federal body, the Pathological Society of London, decided from the outset that its habit of private colloquy should be maintained. But in general the Royal Society of Medicine was designed otherwise: like nearly all its constituent units it was meant to be a forum for discussion of current opinion and practice—a place where novel views, orthodox views, and unorthodox views could be subjected to clarifying comment. Do those taking part in its debates really want to speak to a restricted audience and to have their remarks recorded only weeks or months later and solely for the benefit of fellows of the society? Will not this lack of publicity ultimately affect the prestige of the society and the attendance of its meetings? Will not silence prove disadvantageous to those younger men whose critical contributions to discussions gradually earn them recognition and authority? To these domestic questions we add another, more universal. Cannot the profession as a whole share the advantages that efficient organisation has brought? We believe that actually fellows of the Royal Society of Medicine will be the last to wish that their fruitful union should give birth to any kind of monopoly; they will want their experience and opinions made as useful as possible to practitioners and scientific workers elsewhere. Nevertheless the developing programme of their organisation seems to be leading them, by almost imperceptible degrees, away from this idea of general service.

We ask the sections and their officers to recall that when they refuse access to the reporters of the *British Medical Journal* and the *Lancet* they are not merely (as it may seem) refusing access to a reporter and an editor; they are refusing it to the thousands of medical men and women throughout the world who read the weekly journals but do not, and will never, see the society's own report. Such a decision, surely, should not be taken lightly; and if it is taken mainly to increase the value of the *Proceedings* we ask them to think not twice but three times. Boiled down to its essentials the argument would run: fellows of the society are entitled to the reports because they have paid for them; other people are not entitled to this privilege. This is an argument that the *Lancet* fought with success last century: we declared that the teaching given in the medical schools was the property of the whole profession and not merely of the students who paid the teacher. No doubt we were legally wrong, but we were professionally and traditionally right. And we are glad to know that our colleagues of the *British Medical Journal*, inheritors of the same tradition, are, like us, unwilling to surrender a right of access that our predecessors dearly won.

HOW THE VIRUS OF POLIOMYELITIS SPREADS

THE prevalence of poliomyelitis in this country during the latter part of last year has led many people to inquire how the disease is spread. In outbreaks, such as that at Halstead, the question arises which is more important: contact and droplet infection, or infection by food contaminated with the virus, either by excretal pollution or in some other way. What do we actually know about the presence of the virus in the nasopharynx or in the intestinal tract of persons suffering from the disease, whether in its acute stage or during convalescence? KRAMER, HOSKWITH, and GROSSMAN review[1] the evidence and record a series of recent observations made by themselves in New York. The results recorded by earlier workers are presented in a series of synoptic tables, but the reader is warned that many of the earlier findings should be regarded with caution, and that full confidence should be accorded only to those instances in which the occurrence of the disease in the first monkey inoculated with any sample under test has been confirmed by the successful passage of the virus to further monkeys. Accepting this criterion, the records show that the virus has been demonstrated in nasopharyngeal washings obtained post mortem from persons dying from the disease, and during life from acute cases, convalescent cases, abortive cases, contacts, and carriers. It has also been demonstrated in the fæces during the acute stage of the disease, and during convalescence The total number of successful isolations has, however, been small, they afford no basis for any estimate of the frequency with which the virus may be recovered from the nasopharynx or from the fæces at different stages of infection It is, indeed, unlikely that we shall be in a position to evaluate carrier-rates for the virus of poliomyelitis until we have at our disposal some method of isolation less expensive, and less time-consuming, than the reproduction of the disease in monkeys followed by successful passage.

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[1] Kramer, S. D., Hoskwith, B., and Grossman, L. H., *J. exp. Med.* 1939, 69, 49.

These American observers took nasal washings and fæces from twenty patients at various stages of the disease or during convalescence The fæcal specimens were freed from living bacteria before inoculation into monkeys by treatment with ether Virus was only recorded as present when passage experiments were successful. From these twenty patients four strains of virus were isolated One was from the nasopharyngeal washings of a child aged six years 5 days after the onset of the disease. In this case the fæces were negative. A second was from the fæces of a child of fourteen 7 days after the onset of the disease In this case the nasopharyngeal washings were negative The third and fourth strains were from the nasopharyngeal washings and fæces of a child aged two years, both samples being taken on the 9th day after onset We may, then, take it as proved that the virus of poliomyelitis can be recovered from the fæces as well as from nasopharyngeal washings, though we cannot yet estimate its relative frequency in the two situations This demonstration, as Kramer and his colleagues are careful to emphasise, tells us little beyond the fact that the virus is able to withstand the acidity of the gastric juice and pass alive into the intestine It does not justify the assumption that primary infection occurs via the gastro-intestinal tract, since nasopharyngeal infection might well be followed by passage of the virus to the intestine by reflex swallowing. It does not, indeed, tell strongly either for or against the view that infection may sometimes be carried by contaminated foodstuffs instead of by droplet infection, since certain kinds of food, and particularly unpasteurised milk and uncooked fruits and vegetables, may be contaminated from the nasopharynx as readily as from the fæces. Most workers would, we think, agree with Kramer that no evidence has yet arisen to throw doubt on the generally accepted view that the most important method of spread in poliomyelitis is by human contact, and particularly by droplet infection. This does not mean that we can neglect the possibility of spread by contaminated food Its occasional occurrence seems no more unlikely than milk-borne outbreaks of tonsillitis.

The lesson that we should learn from the isolation of the virus from the fæces is a rather different one. It is clear, even if we accept the view that infection almost always occurs by the nasopharyngeal route, that we should pay more attention to the treatment and disposal of excreta from infected persons. Dry fæces may well produce highly infective dust particles ; inadequate sewage disposal may lead at times to the contamination of food or water, which may then infect the nasopharynx on its way to the stomach.

MANCHESTER'S HOSPITAL CENTRE

The opening by the Minister of Health of the new orthopædic and physiotherapeutic block at the Manchester Royal Infirmary on Jan 20 has a two-fold significance In the first place the new building provides modern facilities and amenities for the large organised fracture service established by the hospital some years ago. Equally important however is the leading rôle which this service in its new accommodation is expected to play in the coordinated scheme for the treatment of fractures covering the city of Manchester. This development is the work of the Joint Hospitals Advisory Board. The activities of this board are now well known, and the success with which it has brought the municipal and voluntary hospitals and the medical school of the university into equal partnership has earned widespread approval The idea of a coordinated fracture service is part of what one day may be a true unification of existing orthopædic services The scheme which is now in being provides for the free interchange of patients between the various fracture units of a city with over three-quarters of a million inhabitants, and where not less than 6000 new fractures have to be dealt with each year. It should be possible in the future to segregate certain types of injury in one unit for special study, and with a uniform system of documentation knowledge should be readily available regarding the end-results of any particular form of fracture treatment.

Manchester is rapidly moving towards the creation of a university hospitals centre, without the need for transferring the teaching hospitals to a new site far from the heart of the city and without taking from any of them their individuality or traditions The relatively modern buildings of the Royal Infirmary now cover 17½ acres, and this hospital is flanked by the Royal Eye Hospital on one side and by the St Mary's Hospitals for Women and Children on the other. Nearby are the university departments of pathology and bacteriology, which have been established for some time, and the university department of experimental surgery which was opened last year Although there has been no amalgamation between the Royal Infirmary and St Mary's there is to be the closest coöperation between them so that their activities will not overlap. St Mary's will deal with all gynæcological cases, whereas the Royal Infirmary will place at the disposal of St Mary's its radiological and other technical departments. The medical staff of one hospital will be available for consultation by the other and the nurses of both will be under the charge of a joint nursing committee. To cope with its added responsibilities St Mary's proposes to close its obstetrical branch in the centre of the city, and to build a new obstetrical hospital with 160 beds in High Street, adjoining the gynæcological branch. As the first step it has erected an admirably equipped out-patient building for gynæcology and pædiatrics which has been in occupation for several months and has now received the official blessing of the Minister of Health.

TUBERCULOSIS IN INDIA

The prevalence of tuberculosis in India cannot yet be computed in figures. Since the publication of **Lankester**'s textbook in 1920 there have been several surveys of districts and of groups such as the police, but none of them gives any real indication of the total number affected. In a special number (September, 1938) of the *Indian Medical Gazette* Dr P. V. **Benjamin** of the Union Mission Tuberculosis Sanatorium records a survey carried out in 1927 in parts of the Chittoor district and its environs, which included three towns and two large and many small villages. The percentage of positive reactors in the whole group investigated was 37·8 for adults and 10·8 for children under fifteen. The survey showed that whilst the proportion of reactors was much the same in Hindus and Indian Christians it was strikingly higher in Moslems, whether urban or rural. In adults the percentage of positive reactors was 36·6 for Hindus, 32·4 for Indian Christians, and 53·4 for Moslems; in children, 9·9 for Hindus, 10·6 for Indian Christians, and 16·7 for Moslems. Dr **Rose A. Rist** is persuaded that the key to the tuberculosis problem lies in the zenana. She points out that of the 600,000 deaths each year from tuberculosis all but 10,000 occur in the home, and she quotes figures for Ludhiana in the Punjab which show that the mortality among women of the 20–24 age group is 83 per 100,000 of the total female population—more than four times the mortality in the same age group in Detroit.

Analysing the occupations, Dr **Benjamin** found a high proportion of reactors among the immediate attendants of tuberculous patients and in police, merchants, clerks, and others with indoor occupations, whilst the lowest proportion was in adults engaged in agriculture. A detailed study of the types of tuberculosis in patients admitted to the Union Mission Sanatorium since 1930, based on clinical, radiological, and blood examinations, showed that only 5·3 per cent. had obvious evidence of fibrosis, whilst in 93 per cent. the disease was predominantly of the exudative type, generally with little tendency to heal. As in the analogous case of the African native, Dr **Benjamin** thinks that when tuberculosis arises in people living in their natural surroundings it does not tend to become epidemic but spreads slowly with a large number of mild and chronic forms. When living conditions change, however, many succumb to the acute form of disease. The environment in India is changing rapidly. Improved communications are bringing the villages into contact with the towns and industrial centres, and the amenities of urban civilisation are proving an increasing attraction for the rural population, so that there are more and more opportunities for concentrated infection.

This is another example of the evils that follow western industrialisation where there are no western safeguards, for antituberculosis measures in India are as yet in their infancy. Dr C. **Frimodt-Moller** considers that India stands now where Europe stood thirty years ago, and he urges the need for the further development of tuberculosis clinics—the foundation of all preventive work—and of hospitals, sanatoria, educational and training schemes, and research. The chief obstacle to progress is the general poverty of the country, but the shortage of specially trained workers and the absence of health-insurance schemes and of any system of notification are contributory factors.

NATIONAL SERVICE

This week every household in the land will be receiving a guide to the ways in which the people of this country may give service. It contains a request from the Prime Minister to every citizen to read it carefully and to decide how he can best help. Apart from information for candidates for military commissions medical practitioners are not mentioned otherwise than to state that special arrangements are being made in conjunction with the British Medical Association to register those who are willing to volunteer for the various medical services that would operate in war time. From the list of "reserved occupations," however, it is seen that no member of the medical profession, and no medical student who has passed the second professional examination, will be expected to undertake non-medical work. This also applies to bacteriologists and pathologists (other than members of the medical profession) who are more than 25 years of age.

The guide also has something to say about the great demand for nurses in view of the probable casualties among civilians as well as in the armed forces. It is essential in the Government's view, that those who already have nursing experience should reserve themselves for nursing in time of war and that many women without this experience should train for such service. For their training they are referred to the St John Ambulance Brigade, the British Red Cross Society, or St Andrew's Ambulance Corps. Women who undertake to do nursing or first-aid work in war time may offer to serve anywhere in the United Kingdom or abroad if necessary, or they may make it clear that they would be unable to leave their home district.

ANNOTATIONS

GLASGOW TO PRINTING HOUSE SQUARE

THE reminiscence writer nowadays so often hopes to gain his effect by unveiling the clay feet of the great that it is easy to forgive one whose failings are all the other way. Dr. McNair Wilson's capacity for hero-worship may sometimes have led him astray in his "Doctor's Progress" (London. Eyre and Spottiswoode. 1938. Pp. 286. 10s. 6d.), but at least he is no debunker. Wilson was brought up in the strict but kindly home of a Glasgow merchant of the Free Kirk, with his Uncle Aday, who loved jokes and wore no socks, to offset his aunts whose chastity extended to allowing their cat out only on a lead. The Glasgow of fifty years ago went in perpetual fear of death, disease, and poverty, for its religion was based on hell-fire, its slums were the worst in Europe, and for the rich a crash on the exchange spelt social banishment. Darwin found ready acceptance there, for the survival of the fittest was the only law they knew. Like many others Wilson reacted from hell-fire to an atheism founded on science and technology. On leaving hospital for general practice he passed through the familiar stage of despair at the futility of what he had been taught followed by growing satisfaction as he learnt to apply it. In 1913 he came to practise in London, but a chance article that attracted the attention of Northcliffe led him to Fleet Street. Northcliffe picked a winner, for Wilson was a born journalist: he could make celebrities talk shop and remember what they said, and he could raise at least a temporary enthusiasm for any subject, however inherently dull. For Northcliffe he hired tugs to carry news of the Irish civil war, reported the arrival of the B.E.F. at Boulogne, and scooped the battle of the Marne. Later he helped Mackenzie, who was teaching the world that the only criterion of a heart's capabilities is what it can do. He caught glimpses of Ross's fury, of Bruce's geniality, of D. H. Lawrence's earnestness, of the superhuman traditions of a Guards' mess, and, as a consulting cardiologist and medical correspondent of the *Times*, of much besides. Twice he stood for Parliament as a Liberal, and came to realise the remoteness of politics from reality and the power of the slogan as a barrier against inconvenient seekers after truth. In his last chapters Wilson delves further into the theoretical; but he is a writer of great experience, and whether he is discussing the mysteries of psycho-analysis, the deeper mysteries of money, or his own political and spiritual metamorphoses, he is never dull.

CONTROL OF HÆMORRHAGE IN JAUNDICE

IT has long been known that patients with jaundice are particularly liable to bleed both at operation and soon afterwards. Early last year Butt, Snell, and Osterberg[1] brought forward evidence confirming the previous findings of Dam and Glavind[2] that the administration of vitamin-K concentrates, together with human bile obtained from a fistula or with animal bile-salts, had an inhibitory effect on such bleeding. The only recognised defect in the coagulation mechanism in jaundice is a prolonged prothrombin-time, and medication with vitamin K and bile-salts was found not only to stop bleeding but also to shorten the prothrombin-time. The same workers now report further results.[3] As a source of vitamin K they used a concentrate of alfalfa, which is rich in this vitamin. In planning preoperative treatment they divide jaundiced patients into three groups: those who have a normal prothrombin-time, those who have an elevated prothrombin-time, and those who are actively bleeding. For the first group they recommend 2–6 gelatin capsules, each capsule containing 200 mg. of alfalfa concentrate, and 1–2 grammes of animal bile-salts by mouth daily. Almost any type of animal bile-salts can be used, and Desicol, sodium desoxycholate, Bilron, and Bilein have all proved satisfactory. In the two latter groups much larger doses of vitamin K may be necessary. When the patient is actually bleeding 2–4 grammes of a water-soluble bile-salt dissolved in 250–500 c.cm. of warm normal saline solution together with 1–2 grammes of alfalfa concentrate should be given slowly by duodenal tube. Butt and his colleagues say that in severe cases the bleeding sometimes stops long before the prothrombin-time has reached normal. Similar medication in hæmophilia, menorrhagia, metrorrhagia, and essential hæmaturia was without effect, either on bleeding or on an already normal clotting-time. Of 28 jaundiced patients who were treated with vitamin K and bile-salts before and after operation only 3 bled post-operatively and none seriously, so there were no deaths from hæmorrhage. This is in contrast to 14 patients who received no such treatment and of whom 9 bled after operation. Though treatment with alfalfa and bile-salts is still purely empirical, it seems to deserve further trial in jaundiced patients in whom surgical interference is essential.

"MEN OF MEDICINE"

A FILM with this title is to be generally released on Feb. 6, after being shown in London for a week at the Astoria and another at the New Gallery. It is No. 10 of the fourth year of the "March of Time" series and is a synopsis of medical practice in the United States. The leading part is played anonymously by a senior medical student, who is shown studying anatomy (mainly by copying diagrams), swearing the hippocratic oath on qualification, attending his first patient and pocketing his first fee, and saving a boy's life by making a spot diagnosis of gangrenous appendix on the strength of muscular rigidity over the right iliac fossa. So far there is nothing very exciting, except possibly for the uninitiated layman, but now the story gets cleverly linked up with the major medical problem of the day in the U.S.A.—the problem of socialised medicine. The audience is shown how a movement has been started to protest against the medical profession's gift of free services in hospitals and elsewhere to the tune of a million dollars daily. Side by side with this fact that thousands of patients are getting free medical attention is the fact that in the wilder parts of the country, especially among the negro population, there are large areas with no medical service whatever. After three years' survey Thomas Parran, surgeon-general of the U.S. public health service, declares that 500 new hospitals are needed, and that the medical services should be controlled by the government. This has led to a difference of opinion in the profession. Alternative schemes have been suggested. John Peters, of Yale, thinks that special taxes should be imposed, the income derived therefrom to be used by the government to subsidise hospitals and to pay their medical staffs Kingsley Roberts votes for a coöperative scheme among patients Morris Fishbein, editor of the *Journal of the American Medical Association* opposes any radical departure from the present professional practice, he is described as representing the largest body of practitioners These four ' men of medicine " are named and shown on the screen airing their views Whatever may be the outcome of the controversy, it seems to us right and useful that the public should have authoritative information about the principal issues

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[1] Butt, H. R., Snell, A. M., and Osterberg, A. E., *Proc. Mayo Clin.* 1938, 13, 74.

[2] Dam, H., and Glavind, J., *Lancet*, 1938, 1, 720.

[3] Butt, Snell, and Osterberg, *Proc. Mayo Clin.* 1938, 13, 753.

POPULATION RESEARCH

SINCE the war, and especially during the last decade, the study of population has been pursued in the United States with characteristic energy These studies have been facilitated by generous financial support from such voluntary organisations as the Scripps Foundation for Research in Population Problems and the Milbank Memorial Fund, and have yielded a mass of valuable and unique information The subject is far from being only of academic interest For many purposes—e g , the provision of school places, water and electricity supply, transport development, and pensions schemes—it is important to make reasonably accurate forecasts of population growth The continuing decrease in the number of school children in this country, for example has falsified earlier notions of the number of school places likely to be required in the future The planning boards of the states of the American Union have lately taken up population forecasting and increasing interest is being shown in population questions throughout the country Successful forecasting requires trustworthy methods of estimation and in this field valuable work has been done by Dr P K Whelpton and Dr Warren Thompson of the Scripps Foundation Allied to the problem of foretelling population is that of determining what should be regarded as the optimum population of a country or parts of a country a subject that is beset with difficulties and therefore still remains largely a matter of speculation Even if the question is regarded purely from the economic point of view, and the optimum population defined as that which will ensure the greatest amount of economic welfare per head the task of formulating criteria for determining the optimum is one of great complexity

In addition to the problems of quantity there are others relating to qualitative differences that urgently require solution To what extent may the decline of fertility in most western countries during the last fifty years be attributed to the voluntary limitation of families or to other factors ? Can the decline be correlated with differences of social, economic or educational status of intelligence, or of race, religion, or geographic conditions ? How far can a fall in population be checked by reduction in mortality and what measures are most likely to be effective in checking the fall ? These are some of the problems that confront modern students of population

In a recent book Dr Whelpton[1] who has been assistant director of the Scripps Foundation since 1924, indicates the directions in which and the methods by which further research may most profitably be prosecuted He emphasises the need for overhauling American official population statistics, especially the census enumerations and tabulations and the registration of births and deaths, and points out that drastic revision of procedure is required if the 1940 census is to avoid the defects of its predecessors, particularly as regards the under-enumeration of children and misstatements of age, race, nativity and occupation He suggests that a useful method of checking census results would be to have "sample areas re enumerated by a carefully selected and highly trained staff of workers, perhaps chosen in coöperation with research workers in various parts of the country " But official statistics, however carefully compiled and helpfully tabulated cannot furnish all the data needed for the elucidation of population problems There is need for supplementary ad-hoc investigations, and particularly for what Dr Whelpton describes as "the intensive gathering of information from selected groups of people by specially trained interviewers " Dr Whelpton concludes by defining three groups of problems on which further research is especially needed

1 The motives—economic, biological, and social—that lead couples to want a given number of children and practise birth control accordingly

2 The comparison of the present distribution of population within the nation with the optimum distribution

3 The changes which are taking place in the hereditary make up of the population, including their direction, rate, and causes

One impression left by perusal of this book is that the extent and variety of American population studies are in striking contrast to what has been done in this country since the death of Malthus Though in the early years of the century distinguished work was done by Sir Arthur Newsholme and the late Dr T H C Stevenson, and in 1922 Prof Carr Saunders produced in his book "The Population Problem" a contribution of first rate value, it was not until some five years ago, when Dr R R Kuczynski began his work at the London School of Economics, that the subject began to receive the attention its importance demands

MANAGEMENT OF GANGRENOUS LIMBS

A PRINCIPLE widely accepted in the management of gangrene of a limb is that the part should be kept warm The reasons for this at first sight appear obvious Warmth is a quality possessed by a normal and lacking in an ischaemic limb, and should surely be restored where it is wanting Warmth will improve the circulation by dilating the blood vessels, and by promoting evaporation will keep the surface of the limb dry, two extremely useful functions It will also increase the metabolic rate of the tissues, thereby one would suppose putting them in a better position to resist infection and the progress of the gangrene But warmth has disadvantages, practical and theoretical The dangers of overheating an ischaemic limb are well recognised nowadays spread of the gangrene or fresh lesions are easily produced thereby The analgesia often present in such a limb or an assumed lack of resistance of the ischaemic tissues is the explanation usually offered for these effects The benefits of increasing the metabolic rate of the tissues, too may be fallacious, for this is only an advantage so long as the tissues can be supplied with the extra fuel to sustain the increase, and the blood supply of a partly gangrenous limb is so small that it is unable to keep the whole limb alive, let alone sustain an increase of its metabolism. If the metabolic rate of the tissues is raised but sufficient fuel is not forthcoming, the tissues will die and fresh gangrene will result. These arguments are theoretical, but are supported by some interesting animal experiments by Allen[1] in America. He found that if a rabbit's limb was strangulated with a tourniquet and immersed in ice-water for as long as 52 hours it would still recover, whereas a limb strangulated at room temperature would survive for only about 15 hours. If the limb was artificially warmed to 38° or 39° C. it would be even more rapidly affected by the strangulation. Moreover, the general toxic effects after release of the tourniquet varied inversely with the temperature of the limb during strangulation. It is a pity that Allen's experiments were not more strictly controlled, but he has at least made out a good case for further investigation. Clinical tests should also be carried out. It may be that a radical change will have to be made in the management of the gangrenous limb; perhaps it should not be warmed, but cooled.

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[1] Needed Population Research By P K Whelpton Prepared under the auspices of the Population Association of America Lancaster, Pa The Science Press Printing Co 1938 Pp 196 $1 00

ITCHING

IRRITATION of the skin by slight burns, freezing, pinching, galvanism, or ultraviolet irradiation produces two kinds of itching, named by Bickford[2] "spontaneous itching" (at the point of irritation) and "itchy skin" (in an elliptical area surrounding the point of irritation and evoked by the stimulus of touch). There is a definite boundary between itchy and normal skin. Injections of a solution of histamine in normal saline showed after puncture a latent period of 20–30 sec. before spontaneous itching began. Itchy skin could usually be detected over a small area in the immediate vicinity of the puncture at the end of a minute, and during the next 10 minutes it extended to form an elliptical area whose long axis was always parallel to the cutaneous nerve-trunk of the same region. That this phenomenon was not due to the diffusion of histamine was proved by injecting histamine into an anæsthetised area, whereupon itchy skin did not develop until the local anæsthesia had passed off.

Experiments were made to determine the nervous pathway. Reflex action through the spinal cord was excluded by the type of cutaneous response in the presence of barriers of anæsthetised skin. Itchy skin developed at a normal rate on the proximal side of such a barrier but was delayed on the distal side until the anæsthesia had passed off. This proved that the nervous pathway was local, and the fact that itchy skin did not spread round the edges of the barrier suggests a plexiform arrangement of the local nerves rather than a freely anastomosing network. The sympathetic nervous system was excluded from the mechanism of itchy skin by experiments in patients who had undergone unilateral sympathectomy. It was also found that itchy skin could be abolished by a degree of asphyxia that did not affect spontaneous itching. This showed that the two sensations were carried by different nerves. The sensation of tickling is closely associated with that of itchy skin. In cases of sensory dissociation itchy skin is not detected in areas that have lost the sensation of tickling, even though the sensation of touch may be retained. Spontaneous itching is not felt where pain to pinprick is defective. Tickle sensation, spontaneous itching, and itchy skin are all conveyed in the anterolateral tract and disappear when it is divided. Itchy skin can be inhibited (the inhibition being of central origin and probably produced through pain nerves), as shown in "antipruritic" skin produced by painful stimuli.

EFFORT SYNDROME

SPONTANEOUS hyperventilation is admittedly a not uncommon manifestation of excitement, anxiety, and emotion in unstable people. Since it was first described in 1922 numerous cases have been recorded, originating from a great variety of exciting stimuli—some of them bizarre. Almost always the presenting symptom has been tetany or hyperventilation, and there has been no doubt of the diagnosis. It is of course certain that many cases will have escaped recognition; but if Soley and Shock[1] are correct in supposing that "effort syndrome," which has been well known for a long time, is really nothing more or less than spontaneous hyperventilation, there will be little to be said for those who have made a study of effort syndrome. There are, however, one or two points about Soley and Shock's contention that deserve critical reflection. Effort syndrome attacks both sexes, whereas hyperventilation tetany is rarely met with in men. (The only case described by Soley and Shock was in a woman.) Furthermore, effort syndrome is not characterised by tetany, which is usually a feature of simple hyperventilation. No doubt these discrepancies will be investigated but meantime there does not seem to be enough evidence to discard the old terminology of effort syndrome (as Soley and Shock suggest) and to substitute an "anxiety state complicated by the hyperventilation syndrome."

NATIONAL NUTRITION POLICIES

Too little attention is paid to the non-political work of the League of Nations. The technical commission on nutrition, for example, has been trying to help governments all over the world to improve the physical state of their peoples, and its latest report[2] describes the policies that various governments have actually adopted. It will be seen that some countries have done a good deal and others very little, but it is encouraging to observe the thoroughness with which some nations at least are investigating their problems. The national nutrition committees working under the League not only give advice to their governments but sometimes make recommendations on their own initiative. In 1937, for instance, the Danish committee drafted a bill to compel the proper preparation of flour, and the Iraq committee has advised its government on measures for stimulating fisheries. In many countries measures have been taken to remedy deficiencies in the dietary of the poor, especially the lack of milk. In Latvia the coöperative dairies offer bonuses to milk-producers, and in Norway grants are made for the provision of cheap milk, meat, and bacon to poor families. Many countries provide meals free or cheaply to special groups of consumers. Diet schedules have been drawn up and supervised by national nutrition committees on behalf of public institutions in which food is provided by the authorities.

The League recognises, however, that ultimately the obstacles to sound nutrition are largely economic, and that measures of public assistance scarcely touch the edge of them. Other measures adopted by different countries are the reorganisation of agri cultural production (as in Hungary and France), sympathetic tariff or transport policy, and better distribution. The Esthonian government have reduced the duties on fresh fruit, and the government of India the duty on dried skim milk. The Latvian ministry of agriculture has organised the state transport of fish to inland settlers, and the Queensland government charge no freight on fruit or vegetables going to outlying districts more than 200 miles away. In this country the Food Council has suggested measures for rationalising the retailing of milk. The Scandinavian countries and America have considered the merits of "internal dumping," or distributing milk and other foods at reduced prices in their own territory, as against spending large sums to enable foreign buyers to obtain cheap supplies of foodstuffs which their own populations badly need. Education and publicity have been found to accomplish much, and some countries, particularly Belgium, have made good progress in this direction. The Yugoslav government have opened numerous schools to teach peasants how to manage their households and their farms, take care of children, cook and prepare provisions for the winter. Hygiene talks are broadcast every week from Baghdad but the difficulties of propaganda in an illiterate country are very great. The whole report brings home to the reader the great value of an energetic international body of this kind.

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[1] Allen, F. M., *Surg. Gynec. Obstet.* December, 1938, p. 746.

[2] Bickford, R. G., *Clin. Sci.* December, 1938, p. 377.

[1] Soley, M. H., and Shock, N. W., *Amer. J. med. Sci.* December, 1938, p. 840.

[2] Survey of National Nutrition Policies. League of Nations 1937–38. Allen and Unwin. Pp. 120. 2*s.* 6*d.*

HYPERTONIC INTRAVENOUS SALINE

That the injection of strong salt solutions into a vein is not without danger is shown by Robertson and Barrett.[1] Although an injection of 30 per cent. sodium chloride may raise the blood-volume of cats to double what it was before, this effect is only transient and the original level is regained in half an hour. A less desirable result is hæmolysis of red cells, which the investigators found sufficient to interfere with the vital red method of blood volume estimation, a similar effect being obtained in man. Other sequels to the infusion include crenation of the red cells with consequent reduction of the red cell volume, and later an increase in the red-cell volume through mobilisation of the cells from the depots. This increase could be prevented by previous evisceration of the cats and exclusion of the liver from the circulation. Robertson and Barrett's experiments provide a further demonstration of the great care necessary in reading the results of blood-volume estimations after intravenous infusions.

SOCIAL FACTORS IN DISEASE

No general practitioner needs to be told that a large proportion of organic diseases have their origin in the patient's environment or that the degree of disability and suffering produced by an organic disease varies largely with the patient's social conditions. In hospital patients, however, these facts are liable to be lost sight of and Dr. G. Canby Robinson[2] of Johns Hopkins Hospital is doing a valuable service in setting them on a firmer basis. He has made an intimate personal study of the relation between clinical findings and social conditions in 145 patients of mixed nationality and sex, chosen more or less at random from the wards and outpatient departments. After complete physical investigation each patient was interviewed by Dr. Robinson himself and an attempt was made to divide the symptoms into those caused by organic disease and those of emotional or psychogenic origin. Either Dr. Robinson or the social worker who collaborated with him subsequently visited 111 of the 145 patients in their homes. In two-thirds of the total adverse social conditions were found to be directly related to the patient's illness, and in more than a third they were considered its main precipitating cause. It should perhaps be added that 45 patients were found to be suffering from psychoneuroses or symptoms that could not be explained on the basis of demonstrable disease. Dr. Robinson's study however is evidence that many of the symptoms even of organic disease can be traced back to emotional disturbances associated with home or other environmental difficulties, and he pleads for systematic study of this relation.

WAR SURGERY IN SPAIN

The possibility of being called upon to treat air-raid casualties is compelling civilian doctors to pay increasing attention to military surgery, and this gives an added interest to the lessons of the Spanish civil war. At one time some 200 international doctors, and 500 nurses, &c., were attached to the government forces and on Jan. 17 four of the British contingent recounted their experiences at B.M.A. House. The first speaker, Dr. R. S. Saxton dealt with blood-transfusion under field conditions. He strongly advocated the "ampoule under pressure" method, using stored citrated blood, as being the simplest and most rapid and the only one practicable where doctors are scarce. Dr. A. L. Tudor Hart discussed gunshot fractures. He stressed the highly infected nature of the wounds met with and urged the importance of early excision rather than reliance on antiseptics. In his experience the necessity for primary amputation was rare in the case of the upper limb but much commoner in the lower, where gas gangrene was more likely to arise. Amputation was not required where there was damage to the bones alone, but where the femoral or popliteal vessels were also involved. Organisation was essential in the treatment of gunshot fractures, and since something like three quarters of field casualties had injuries to the limbs there was considerable scope for "traumatological teams" with special training in fracture work.

Dr. C. C. Bradsworth had been medical officer of the British battalion of the international brigade. He gave a vivid account of the hardships endured by the troops and a modest but none the less definite impression of what a regimental doctor can do to lessen suffering and preserve morale. Finally, Dr. D. Jolly spoke of the organisation of field hospitals. Successful results, he said, depend largely on efficient classification of the wounded. Field hospitals should be placed so that they were reasonably safe from shell fire and air bombing and so that evacuation from the front line was easy and rapid and there was the least possible delay between the wounding and the surgical intervention—time and not distance being the main consideration. If operations were done in tents great care was required in obscuring all lights. Buildings in villages, convents, churches and large houses were liable to air attack and were not suitable for operating centres; recently the surgeons in Spain had placed their theatres in underground shelters, natural caves, and railway tunnels. Hospital trains could also be run into tunnels and used as both theatres and hospitals. Although mobile surgical teams were invaluable, mobile operating theatres apart from those in trains were fantastic. As regards equipment all time-saving devices were to be encouraged and for that reason multiple sets of instruments and two or three tables should be available for each surgeon

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[1] Robertson, J. D., and Barrett, J. F., *Quart. J. exp. Physiol.* December 1938, p. 405.

[2] Robinson, G. C., *Trans. Ass. Amer. Phys.* 1938, 53, 102.

The problems that these surgeons have been facing with the Spanish army are no doubt only a part of those which would arise among civilians Air-raid wounds are more severe and more likely to be multiple than those due to shell, rifle, or machine-gun fire, and the difficulties of collection and evacuation that loom large in all schemes for dealing with civilian casualties are comparatively negligible in purely military surgery.

INTERSEXUALITY

INTERSEXUAL individuals are found in almost every group of mammals. The earliest detailed investigations of mammalian intersexuality were made on freemartins, the externally female twins of male calves Freemartins have female external genitalia, but as a rule their gonads are of the male type, though they do not produce spermatozoa. In 1916 it was suggested in America by Lillie, and in Germany by Keller and Tandler, that freemartins are zygotic females which have been modified by hormone passing from their male twins through the united embryonic membranes This suggestion has now been experimentally investigated and partially confirmed by Dantchakoff,[1] who showed that female guinea-pig embryos are transformed in a male direction if they are injected with testosterone propionate in utero. The modifications affect the external genitalia, as well as the development of the wolffian ducts, seminal vesicles, and prostates The ovaries remain unchanged

Similar observations have been made on rats and mice Thus Greene, Burrill, and Ivy[2,3] succeeded in masculinising female rat embryos by injecting male hormone into the mother during gestation The external genitalia changed to the male type and wolffian organs appeared, while the uterus, oviducts, and the upper part of the vagina persisted The fact that only the upper vagina persisted suggested to these investigators that the lower part is derived from the urogenital sinus, which developed in a male direction under the influence of male hormone. Raynaud,[4] whose experiments were similar to those of Greene and his associates, found that when male hormone is injected into mice eight days before parturition the female offspring have accessory reproductive organs of both the male and the female type, together with ovaries and male external organs Both the müllerian and wolffian organs continue to develop after birth, whether or not more male hormone is injected If such intersexual mice (but born of mothers injected three or four days before parturition) are allowed to grow up, their sexual behaviour is found to be normal, though they are necessarily infertile since they have no vaginal openings On the other hand, if these modified females are injected with testosterone propionate, their behaviour becomes typically masculine, which suggests that sexual behaviour in mice may be largely under hormonic control.

The reverse change—that is the experimental feminisation of male fœtuses—has been reported recently by Greene, Burrill, and Ivy,[5] who injected œstradiol dipropionate into pregnant rats on the 13th, 14th, or 15th day of pregnancy. The male offspring had reduced prostates, vasa deferentia, seminal vesicles and epididymes, and also vaginæ similar to those of newborn females. One possible *interpretation of these experiments* is that œstrogenic hormone has a morphogenetic effect comparable with that of androgenic hormone.

A conference summoned at B M A House on Wednesday, Feb 15, will be addressed by the Minister of Health who will outline his plans for utilising medical personnel in case of emergency.

The Minister of Health has given notice of regulations under the Census Act to come into operation forthwith. This will enable the compilers of the National Register to use the ordinary machinery of the census.

The Minister of Labour has appointed an advisory council to advise him on the utilisation in war-time of persons with scientific technical, professional, and higher administrative qualifications. Sir Walter Moberly is chairman of this committee and among its members are Dr. E J Butler, F R S, Mr H. L Eason, F R C S., and Sir Edward Mellanby, F.R C P F R S. The secretary of the council is Miss B. M Power, *who may be addressed at the national servic* department of the Ministry, Montagu House, S W.1

The Duke of Gloucester will be the principa guest at a dinner next Monday to be given by th Lord Mayor at the Mansion House in support of a appeal on behalf of St. Bartholomew's Hospital *It is proposed to raise £65,000 to provide a payin* patients' block, a new nurses' home, and adequat buildings for the X-ray department and for m patients of the special departments

On Tuesday, Feb. 7, the Society for the Protectio of Science and Learning will inaugurate a nationa appeal at a conversazione which the Royal Society i holding at Burlington House, Piccadilly, London W 1, at 8 30 P.M The president of the Royal Societ and the president of the British Academy will receiv the guests

Croydon corporation has decided to take n disciplinary action against any officer or servant i connexion with the recent outbreak of typhoid The corporation is also seeking power to pay compensation even in cases of hardship in which actions have not been brought, *provided the issues are th* same as in the test case The corporation has reached an agreement with the Metropolitan Water Board to take over the whole of the supply of water to the borough

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" . . . We have our personal likes and dislikes that make it hard for us to assess impartially the scientific contributions of our fellow workers Often these emotional *aberrations take the still more irrational form of liking* or disliking large groups of people whom we don't know but about whom we imagine things Who among us maintains a strictly scientific attitude towards what is called the race issue, *either in the form that is acute* in Germany or in the form that is acute in the United States? To be more offensively personal, is there any one so free from vanity that he can be strictly scientific about critical appraisals of his own work? And on a higher level, are not most of us conscious of an unreasoned predilection for certain types of scientific inquiry balanced by an equally unreasoned tendency to depreciate the value of other types?"—WESLEY C MITCHELL, *Science*, Jan 6, 1939, p 4.

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[1] Dantchakoff, V, *Bull biol* 1937, 71, 269

[2] Greene R R and Ivy, A C, *Science*, 1937, 86, 200

[3] Greene, Burrill, M W, and Ivy, *Amer J Obstet Gynec* 1938, 36, 1038

[4] Raynaud A, *Bull biol* 1938, 72, 297

[5] Greene, Burrill, and Ivy, *Science*, 1938, 88, 130

SPECIAL ARTICLES

CONSTRUCTION OF AN ABRIDGED LIFE TABLE

By A Bradford Hill, D Sc Lond , Ph D

AND

M G Hydrf M B Patna, D P H

(From the London School of Hygiene and Tropical Medicine)

A LIFE table is only another means of expressing the mortality experienced in a particular area over a particular period of time For instance the last English life tables[1] show that if 1000 newborn male infants died as they passed through life at the mortality-rates current in England and Wales at different ages in 1930–32, then at ages 10, 50, and 80 there would be, roughly 890, 748, and 162 survivors still living At the mortality rates existing in the same years in Greater London there would be 900, 762, and 164 male survivors at these ages Again, at the same mortality rates of England and Wales the average length of life of these 1000 male infants (the so called "expectation of life") would be 58 74 years, at the rates of Greater London the corresponding figure would be 50 52 At the former rates those who survived to age 60 would on the average enjoy another 14 43 years of life, at the latter rates another 14 37 years

These and other functions of the life table are clearly essential in much actuarial work—e g in life assurance, where the capital amount that can be paid at death must be largely determined by the number of annual premiums that will, on the average, be received They are also of value to the worker in public health, as the above examples show, as useful and graphic expressions of differences between the mortality rates in different places and at different epochs The construction of a complete life table is, however, rather a heavy piece of work, and it also demands a knowledge of the population living at each single year of life and the deaths occurring in each year of age For a particular administrative area—e g a county borough—this detailed information is invariably lacking, and we have only the observed mortality rates within certain age groups—e g, at 0–1, 1–2, 2–5, 5–10, 10–15, &c

METHODS OF CALCULATION

By methods of interpolation graphical or algebraical, it is possible to assess from these the death rates at single years of life, but the process is somewhat laborious. Various methods however, have been devised by which the salient features of the life table may be speedily calculated directly from the observed death rates in the different age groups and, on the available evidence, with sufficient accuracy for the purposes of the public health worker One such method was put forward nearly twenty years ago by L C Snow[2] Using the national life table for 1910–12, constructed by the complete process and the death rates from which it was derived, he determined a number of equations by which the required life table values could be directly calculated from the observed death rates—e g, the death rate at ages 10–15 being known, the probability of surviving from age 10 to age 15 could be found by means of the appropriate equation To shorten the work still further Snow constructed tables from which, the death rate being known, the required probability of survival could be read off With these probabilities of surviving from one age to another the survival column of the abridged life table (l_x) can be constructed in a few moments—e g, the death rate in London in 1891–1900 was 0 00294 per person at ages 15–20, according to Snow's table the probability of surviving from age 15 to age 20 is, then, 0 9856 or in other words of x survivors at age 15 98 56 per cent would be alive at age 20

In the full life table the average length of life lived under the observed mortality rates—the *expectation of life*—is derived from the knowledge of the number of survivors at each year of age In the abridged table the number of survivors is known only at wider intervals of age—e g, at 15, 20, 25, 35—and Snow therefore provides a further series of equations (and tables) enabling the required durations of life lived in each interval (say from 15 to 20) to be derived from the already determined probabilities of surviving The expectation of life at different ages ($\overset{\circ}{e}_x$) can, therefore, also be calculated rapidly By these means Snow constructed a number of abridged life tables and showed that the values given by them agreed with those given in the life tables constructed from the same data by the full process to a degree of accuracy well within the limits that would be necessary for the public health worker

COMPARISON OF THE VALUES REACHED BY THE ABRIDGED LIFE TABLE METHOD WITH THOSE GIVEN IN THE FULL LIFE TABLE MORTALITY IN ENGLAND AND WALES IN 1930–32

Age (x)	Numbers surviving at each age (l_x)			Complete expectation of life in years ($\overset{\circ}{e}_x$)		
	English Life Table No 10	Abridged life table method	Per centage difference	English Life Table No 10	Abridged life table method	Absolute difference
			MALES			
0	100 000	100 000	—	58 74	58 64	−0 10
1	92 814	92 779	−0 04	62 23	62 15	−0 08
2	91,394	91 376	−0 02	62 21	62 13	−0 08
5	90 069	90 026	−0 05	60 11	60 04	−0 07
10	89 023	88 915	−0 12	55 70	55 67	−0 03
15	88 360	88 259	−0 11	51 19	51 15	−0 04
20	87 215	87 134	−0 10	46 51	46 47	−0 04
25	85 824	85 678	−0 17	42 54	42 53	−0 01
35	82 835	82,703	−0 16	33 87	33 85	−0 02
45	78 357	78 244	−0 14	25 21	25 19	−0 02
55	70 041	69 887	−0 22	17 81	17 81	0 00
65	54 899	54 914	+0 04	11 30	11 28	−0 02
75	29 685	30 025	+1 21	6 37	6 31	−0 06
85	6,377	6 580	+3 18	3 30	3 10	−0 20
			FEMALES			
0	100 000	100 000	—	62 88	62 79	−0 09
1	94 545	94 513	−0 03	65 18	65 12	−0 06
2	93 273	93 248	−0 03	65 37	65 34	−0 03
5	92 024	91 995	−0 03	63 24	63 15	−0 09
10	[illegible]	[illegible]	−0 14	[illegible]	[illegible]	0 00
15	90 420	90,307	−0 12	54 25	54 27	−0 01
20	89 343	89 247	−0 11	49 88	49 86	−0 02
25	88 133	88 055	−0 09	[illegible]	[illegible]	−0 05
35	85 353	[illegible]	−0 09	[illegible]	37 63	[illegible]
45	81 170	[illegible]	−0 10	28 30	28 21	−0 09
55	75 290	75 193	−0 13	20 23	20 20	−0 03
65	63 016	63 079	+0 04	[illegible]	13 01	[illegible]
75	40 010	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
85	[illegible]	[illegible]	[illegible]	4 10	[illegible]	[illegible]

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[1] The Registrar-General's Decennial Supplement England and Wales 1931 Part I Life Tables 1936

[2] Supplement to the 75th Annual Report of the Registrar-General Part II Abridged Life Tables 1920

RESULTS WITH RECENT DEATH-RATES

Snow's equations were based upon the mortality experience of 1910–12 and the complete life table based upon it, and their applicability to the lower death-rates of recent years might well be questioned To assess their validity under modern conditions the present numerical test was made

The last English life table (No 10) was based upon the death-rates of England and Wales in 1930–32, and an abridged table was therefore constructed, for each sex separately, from the death-rates prevailing in those years The results are given in the accompanying table. It will be seen that the abridged method gives results which agree well with the values given by the full method. With both sexes the number of survivors at ages up to 55 are consistently rather too few and at ages 65 and above rather too many, but the percentage differences are less than 0 25 per cent at all ages up to 65

The expectation of life is consistently slightly too low (except for an equality in males at 55 and females at 10), but at every age up to 75 the absolute difference is never greater than a tenth of a year or the negligible amount of little more than one month In short, judged by this test, Snow's short method of working gives a perfectly satisfactory result when applied to modern death-rates.

SUMMARY

Abridged life tables for males and females have been constructed by Snow's method applied to the death-rates of England and Wales in 1930–32 The resulting values agree well with those of English Life Table No. 10 and suggest that the method is still applicable under modern conditions of mortality.

We are indebted to Dr. K. Conrad for checking the arithmetic

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

PERIPHERAL ARTERIAL DISEASE

AT a meeting of the Edinburgh Medico-Chirurgical Society last week Dr. W. Melville Arnott and Mr J J. Mason Brown made a communication on the investigation and treatment of obstructive peripheral vascular disease. After giving a summary of the control and functions of the peripheral blood-flow, they pointed out that, whereas nervous vasomotor control is predominant in the skin blood-vessels, the control of the muscle blood-vessels is principally mediated by the products of muscle metabolism The results of deficiency in the blood-supply to the skin consist in nutritional changes and abnormally low temperature, whereas in the muscles intermittent claudication is the cardinal disturbance Where arterial obstruction is present the improvement in circulation following the release of nervous vasoconstrictor tonus should be estimated. This is done by warming the blood by immersion of either hands or feet in hot water Any elevation of temperature in the affected limb following this procedure indicates an increase in blood-flow. It is only in cases showing a substantial rise that sympathectomy should be considered. In most well-established cases of obstructive arterial disease there is no rise of temperature when nervous vasoconstrictor tonus is inhibited.

The principles of treatment are (1) try to limit the cause of the condition ; (2) to increase the circulation ; (3) to care for the ischæmic area. In discussing the methods of increasing the circulation particular emphasis was placed upon intermittent venous occlusion, originally introduced by Collens and Wilensky, and which Arnott and Brown have used in the treatment of 47 cases. This method consists in the application of a cuff to the thigh or arm of the ischæmic limb and the inflation of this cuff to a pressure of 30–50 mm Hg for a period of two minutes and deflation for two minutes The treatment is applied for several hours per day for several weeks Treatment has been found to relieve the resting pain of ischæmia in a day or two, and in intermittent claudication the walking distance is much increased if treatment is continued for several weeks Healing or separation of dry gangrenous areas is hastened In the type of obstructive arterial disease discussed operation on the sympathetic has little place, and the indiscriminate use of periarterial sympathectomy in these cases only brings discredit on an operation which is of value in other types of vascular disease

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PARIS

(FROM OUR OWN CORRESPONDENT)

POSTGRADUATE COURSES

THE arrangements for postgraduate courses in Paris for 1939, under the auspices of the Faculty of Medicine, are now so far advanced that it has been possible to draft a provisional programme, a copy of which is issued as a supplement to the *Presse Médicale* for Jan 7 Application for attendance must be made to the secretariat of the Faculty The courses are classified according to the hospitals at which they are given At the Salpêtrière Hospital, for example, Prof Gosset and his assistants will give a course on surgical technique between June 5 and 24. The course will include 18 lessons in the theory of surgical technique illustrated by films, and demonstrations will also be given of operations At the Broca Hospital a special gynæcological course in English has been arranged from June 19 to July 1. The fee for this course will be 400 francs, and it will be given *only if at least six students attend* The programme at the Institute of Hygiene and Epidemiology is impressively full and those students who satisfy the examiners will receive a diploma

EXAMINATIONS FOR MENTAL HOSPITAL APPOINTMENTS

Some idea of the conditions governing hospital appointments, which are as greatly coveted in France as in England, can be gleaned from the *Journal Officiel* for Jan 1, where particulars are given of a decree governing the examination of candidates for the higher appointments at the mental hospitals of the Seine area When a vacancy occurs a competitive examination will be held in the offices of the medical director or heads of the mental hospital services *Candidates must be under the age of 53* and must have had more than five years' experience in a mental hospital. Each candidate must submit evidence of clinical work and scientific study, 40 points being allotted to the former and 60 to the latter. The salary for an appointment of this kind ranges from 41,000 francs in the fifth class to 58,000 francs in the first.

THE FRENCH BIRTH-RATE

The Alliance Nationale contre la Dépopulation has just issued one more appeal for more babies. It seems that 1938 yielded only 610,000 births—presumably live-births—the deaths exceeding the births by some 30,000. On the other hand, births exceed deaths by some 400,000 in Italy, by half a million in Germany, and by more than 800,000 in Japan every year. "France" this appeal says, "cannot live in peace, keep her colonies, fulfil her mission in the world if she shows herself in comparison with other peoples as a dying nation. She has not an hour to lose if she wishes to assure her safety."

DIPHTHERIA VACCINATION

The passage last summer of a law enforcing vaccination against diphtheria in France may have seemed to the ingenuous to be the last word in the matter. But, as Prof. Debré has pointed out, Prof. Ramon who first introduced anatoxin has since been the target for many barbed arrows discharged by ironical and agnostic marksmen. These attacks may have been partly responsible for the remarkable demonstration in favour of diphtheria anatoxin staged in the large amphitheatre of the Pasteur Institute on Jan. 10. Prof. Ramon deliberately absented himself from this meeting so as not to embarrass his critics. The speakers included Surgeon-General Dopter, formerly director of the French Army Medical Service; Professors Sergent, Parisot, Tanon, Lereboullet, and Debré, and M. Moine the well known statistician. Large though it is, the amphitheatre was packed. The audience being mixed, lay as well as medical, some of the speeches naturally reflected the difficulties always experienced when an attempt is made to feed at one and the same table guests with a wide range of tastes, but the statistics produced should long serve as ammunition against Ramon's opponents.

AUSTRALASIA

(FROM OUR OWN CORRESPONDENT)

COMPANY PHARMACY PRACTICE

ALARMED at the prospect opened up by the announcement that Boots Pure Drug Company proposed to begin operations in New South Wales, and also by the reported negotiations for a merger with existing chain pharmacies in that state, the pharmaceutical interests appealed to the Premier for legislation to prohibit an extension of company pharmacy. The matter was investigated by an industrial commission whose report recommends that the intended operations of company pharmacies should not be restricted by legislation. From the point of view of the public, the real issue is not between big and small business, but between efficient and inefficient service. The commission found that the company pharmacies at present operating in New South Wales were at least as efficient as the corresponding independent pharmacies and that the standard of the professional work of individual pharmacists was no higher than that of the paid employees of companies.

The possible economic effect on existing pharmacies is a big issue. Large companies carrying on a chain of retail stores will undoubtedly tend to drive the smaller independent pharmacies out of business. There is also the danger of these companies establishing a monopoly to exploit the public. The report reveals the very mediocre earnings of many of the independent pharmacists in New South Wales. Half of them earn less than £300 a year, and only one independent pharmacist was found to earn his living solely by dispensing. Of the others a proportion of their income ranging from 75 to 90 per cent. is derived from more general merchandise.

The report has been severely criticised by the director of the New South Wales division of the Drug Trade Defence Council. It is, he states, a vindication of the American drug store type of pharmacy where dispensing of medicines is subservient to the supply of fountain drinks, pies, tobacco and cigarettes, and ironmongery. There is also the question of control by oversea interests, and the transference of profits out of the state. No valid objection could be raised to an oversea concern investing capital in a new industry, but in this case the concern would derive its profits from an industry which is already well catered for by Australian firms.

HOSPITAL NURSES

Public hospitals in Victoria have had to face a new problem consequent upon the decision of the Nurses' Wages Board to introduce a fifty-hour week. To comply with the new ruling, nursing staffs of the public hospitals will have to be increased by about 30 per cent. This has caused some concern, for there is a shortage of nurses already and there appears to be little prospect of meeting the unexpected demand. The hospitals also have to face the expense of an increase in salaries and the need for additional buildings in which to accommodate the extra staff. Unless government assistance is received some hospitals may have to adopt a system in which nurses live away from the hospital.

In order to overcome the shortage of nurses in Australia, it has been suggested that the training course should be reduced from three to two years, that better living conditions should be provided in hospitals, and that more fully trained nurses should be employed in paying portions of hospitals in the place of trainees. Nursing as a profession must clearly be made more attractive, and a shortening of hours is a first step in that direction but improvements in working conditions must add still further to the ever-mounting cost of adequate medical care.

PHYSICAL FITNESS CAMPAIGN

Despite the climatic advantages of Australia it has been felt for some time in medical and sporting circles that the general standard of physical fitness is much below what it might be. Following a recommendation from the National Health and Medical Research Council at its November meeting, the Commonwealth Government has now decided to inaugurate a fitness campaign and to form immediately a national coördinating council under the chairmanship of the Minister for Health with invitations to existing state committees to coöperate. A conference will be convened at an early date to set in motion Australia-wide plans to awaken the interest of individuals and organisations in the campaign. The National Health and Medical Research Council also recommended that voluntary health bodies should be subsidised; that the departments of health and education in each state should take an active part in the movement; that immediate steps should be taken to ensure a sufficient supply of trained leaders; and that physical education should be continued through adolescent years. The action of the Commonwealth Government has undoubtedly been influenced by the need for the development of defence measures.

[illegible]

Owing to a diminution in the number of admissions to the rheumatism supervisory centre at the Paddington Green Children's Hospital, London, W. 2, the centre has now been closed to new cases. It was opened in November 1926 with Dr. Reginald Miller as director.

THE AIR-RAID

A series of articles on medical organisation and surgical practice in air attack by
P. H. MITCHINER, C.B.E., T.D., F.R.C.S., *and* E. M. COWELL, D.S.O., T.D., F.R.C.S.

IV—WOUND SHOCK, HÆMORRHAGE, AND BLOOD-TRANSFUSION

THIS is perhaps one of the most important chapters in air-raid surgery, and a practical acquaintance of these subjects should be acquired by all concerned in the treatment of air-raid casualties

Wound Shock

"Wound shock" is a descriptive term, suggested by one of us (E. M. C.) in 1917, and distinguishes the condition at once from such nervous affections as "shell shock" Wound shock may be defined as "a condition of lowered vitality, resulting from injury, which leads to circulatory failure, with depression of the blood-pressure, lowering of the temperature, concentration of the blood, deficient intracellular oxygenation, and, if unchecked, subsequent death."

RESEARCH IN THE GREAT WAR

In the first years of the Great War wound shock was the terror of the medical officers in France Men died from shock in the regimental aid posts, in the field ambulances, and in the clearing stations in large numbers and sometimes even when suffering from comparatively trivial wounds The numerous theories already in existence at the time were not helpful in suggesting lines of treatment In 1917 the Medical Research Committee of London began a campaign, linking laboratory work at home with clinical observations in France. Observations were made in the trenches; the condition of the men was studied before they were wounded, immediately after being wounded, and in the next few hours on their way down to the casualty clearing station In this way a clear picture of the initiation of wound shock was obtained Four factors were recognised as being concerned in its causation: pain, loss of heat (chill), bleeding, and toxæmia (bacterial or other)

It was found that the common variety of wound shock—secondary shock—took several hours to develop, and that if the above-mentioned factors were combated shock did not develop. The conception of the idea that wound shock was largely preventable provided a splendid stimulus to the war-weary army doctor, and undoubtedly hundreds of lives were saved by the preventive treatment adopted in the last year of the war. Full details of this work are to be found in the official "Medical History of the Great War." *The Lancet*, July 26, 1919, the *Journal of the Royal Army Medical Corps*, August, 1928, and publications by the Medical Research Committee, 1917–19.

CAUSAL FACTORS

The fighting soldier on the battlefield is as a rule deficient in fluid, his output being increased by sweating and his intake lessened by a small water ration. These remarks on dehydration will not apply to ordinary civilian casualties

Pain will, by itself, produce a fall in blood-pressure, which continues until some sedative is given. In the paper in the *Journal of the Royal Army Medical Corps* blood-pressure records are given of a patient suffering from severe renal colic. The maximal pressure dropped in half an hour from 132 mm to 68 mm Morphine was then given, and in fifteen minutes the patient was comfortable and the pressure had risen to 134 mm (fig. 1) Afferent-nerve impulses, unless they actually cause pain, do not appear to produce shock The experimental work of Bayliss and Cannon shows this Support is also given from observations made during a forequarter amputation in a feeble old lady aged 72 Pressure readings were taken every five minutes during the operation A general anæsthetic—gas and oxygen with an occasional whiff of ether—was administered, and the surgeon purposely left the brachial plexus undivided until the end of the operation. The initial pressure of 140 mm dropped only 4 mm and had returned to the original level by the time she was back in bed

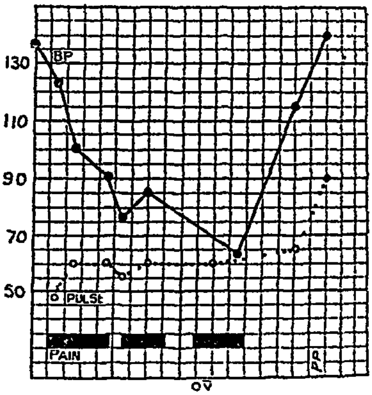

FIG. 1—Chart showing effect of morphine on blood-pressure during an attack of acute renal colic. (From the *Journal of the Royal Army Medical Corps*, August, 1928.)

Wounded men were observed in the trenches to develop shock after trivial wounds as the direct result of chill—e g, absence of covering on the stretcher—and to recover at once when merely warmed up Several cases are described in the above-mentioned paper in the *Journal of the Royal Army Medical Corps*

Loss of fluid from the vessels in *hæmorrhage* may rapidly deplete the circulating fluid, thus assisting in completing the vicious circle which ends in profound shock.

Recent laboratory experiments have been quoted as affording evidence against the hypothesis of *toxæmia* as a cause of shock. Clinically, however, toxæmia seems to be an important factor.

On a warm night in September, 1917, a corporal of exceptionally good physique had his leg blown off by a trench mortar. First aid was given at once, and he lost no blood. He was kept warm, given hot tea, and redressed on a stretcher placed on trestles with a primus stove underneath He was accompanied by a medical officer during his two-hour journey to the advanced dressing station, and frequent blood-pressure readings showed no fall At the advanced dressing station his pulse-rate was found to be quickening and his blood-pressure falling At the casualty clearing station, two hours later, gas gangrene was found to be developing in the muscles of the stump.

Surgeons too have often noticed shock supervening when the tourniquet has been released from a crushed limb

PATHOLOGICAL CHANGES IN WOUND SHOCK

Reference has already been made to the dehydration of the body as aiding in the development of shock Examination of shocked patients showed that their blood possessed an increased viscosity, a raised hæmatocrit index, and a greatly diminished volume (Capt N. M. Keith, R.A.M.C., 1918) Blood taken from the capillaries often showed a high hæmoglobin content and a raised red cell count, while venous blood taken at the same time from the same patient gave lower readings　This capillary stasis in vital organs, such as heart and brain, damages both the heart's muscular action and the medullary vasomotor centres　The already low blood-pressure becomes lower, and the vicious circle ends in death, unless the process can be reversed　Cannon states that, if the systolic pressure is left remaining at 80 mm or lower for more than four hours, recovery is hopeless　The failure of circulation and the consequent deficient intracellular oxygenation produce effects from which the nerve-cells cannot recover

Attention has also been paid to the blood urea of these cases　As the blood becomes concentrated, so the urea is increased, producing toxic effects　From the practical point of view it is not possible to make these urea observations when dealing with large numbers of cases　It is an easy matter to estimate the hæmoglobin

PREVENTION

All personnel engaged in the early handling of casualties should be dogmatically instructed in the four causal factors of shock

Pain is relieved by early administration of morphine sulphate in small doses, repeated if necessary　A tablet (gr ½) is placed under the tongue and "½" marked on the forehead with indelible pencil

Chill is prevented by avoidance of unnecessary exposure of the patient, covering with blankets, and providing hot bottles for the ambulance journey　At dressing stations suitable stoves may be placed under the stretchers, and in cold weather ambulance cars should be heated　A blanket folded in a waterproof sheet may be carried in a closed stretcher as recommended in the R A M C Training Manual 1935

Bleeding is combated by first-aid measures, firm bandaging and splinting of lacerated wounds, even when the bone is not broken, and the judicious use of the tourniquet　As soon as the bleeding has been arrested, administration of fluids restores the depleted circulation and prevents shock

Toxæmia is prevented by good organisation of the medical services, rapid evacuation, and early surgery　In the first-aid treatment of burns, tannic acid dressings, by their coagulating action, prevent the absorption of toxins and the loss of serum and at the same time stop pain

TREATMENT OF ESTABLISHED WOUND SHOCK

In dealing with air-raid casualties, as in ordinary civilian accidents, wound shock should be prevented and seldom encountered

At the dressing stations—In certain circumstances some cases may be met with at the dressing stations　Here they should be retained and not evacuated until the condition has begun to improve　(There will be a few surgical exceptions to this general rule)　A separate resuscitation department should be prepared and organised　The patients are made comfortable in beds if possible, they are kept quiet, reassured, and given morphine if necessary　*Réchauffement* is carried out by electric cradles hot water bottles or improvised hot air stoves　It is *not* necessary to bandage the limbs or to posture the bed　Fluids must be given, unless contra indicated by abdominal wounds　Simple drinks of warm sweet tea will be sufficient in many cases　If the patient is unconscious, attempts should be made to give glucose saline per rectum or, in critical cases, intravenously　In giving glucose saline intravenously a 10 per cent solution is used and is *best run into the vein slowly*　As pointed out by D Fisher (*Surg Gynec Obstet* 1926, 43, 224), the best results are obtained by giving insulin at the same time　Normal saline given into a vein will produce a transient rise in pressure, but the effects are not lasting　Gum saline is a useful remedy and may tide the patient over the worst until a blood-transfusion can be given　Blood should not be given indiscriminately (see section on Blood-transfusion)

Wound shock cases should be carefully watched and be transferred to the surgeon for operation at the right moment

At the casualty clearing hospital—The majority of shock cases will be dealt with at the hospitals where the surgeons are at work　A special resuscitation ward should be prepared with beds and a large nursing staff and medical officers in attendance　Here the measures already suggested for the dressing stations are carried out in greater detail　More blood-transfusion treatment will be possible in this ward and severely wounded casualties made fit enough to stand operation

SURGERY IN SHOCK

In air raid surgery the ideal to aim at is to operate on the cases *before* shock develops　A fatal result will almost certainly follow if a patient is operated on while still suffering from shock　Careful watch must be kept for the right time to send the patient into the theatre　At the operation every precaution must be taken to maintain the body temperature and to avoid chill　Many operations will only be possible if a preliminary blood transfusion is given on the table　The choice of anæsthetic is important　Nothing but gas and oxygen is justifiable in these cases (see *Lancet*, Jan 21, p 173)　Speed in operating is important, and this depends largely on good team-work　In amputating crushed limbs, the original tourniquet should, if possible, be included with the part removed　(A well trained first aid operator is taught to apply the tourniquet as near the damaged part as possible)　Removal of the first tourniquet has been followed by a profound fall of blood pressure, presumably due to the flooding of the circulation by pent up toxins, bacterial or otherwise

Certain cases such as chest wounds with a large open pneumothorax, can be saved only by early surgical interference and the risk of operating in shock must be undertaken　Blood-transfusion, both before and after operation, will often support the patient and enable him to recover after the operation　In Spain at the present time the importance of preventing shock is fully appreciated　The principal method of treatment consists in blood transfusion

Hæmorrhage

It has already been stated that in air raid casualties massive lacerated wounds with compound fractures and multiple lesions may be expected　Vessels are injured and, if untreated patients may die from continuous capillary oozing as well as from wounds of large vessels　The natural mechanism of the arrest of hæmorrhage may be successful even in wounds of the large vessels　The femoral vein has been found completely severed by a missile, 20 hours after the receipt of the wound, and the patient's general condition was not too bad　Continuous unchecked oozing from a wound of moderate size may be more dangerous than bleeding from a severed limb　The former may be inefficiently dressed, but the latter attracts notice and is treated with a tourniquet

EFFECTS OF LOSS OF BLOOD

If a depleted circulation is not treated and the pressure is allowed to remain low too long there is

Dec 12.—We went to lunch today with B—— at Trumbull College. He has very nice rooms, including an enormous fireplace and a log fire. It is curious that over here they speak rather wistfully of our open fires, yet when they have one, which is not infrequently, it is always the fireplace we dream of in England The kind of thing you can stand up in, with no stint of logs The College dining-room was rather like a church inside but had partially panelled walls and a minstrel gallery at one end. This was decorated with evergreens B—— said they had already had their Christmas party, which included a dinner of roast duck From the purely gastronomic point of view it had been excellent, but it was clear to us that B——'s nervous system had not been proof against the shock of having to interrupt the meal seven or eight times for the purpose of singing carols He and his friend, also English, gravely discussed the impossibility of such an occurrence at Cambridge (or Oxford) during, or even after, a celebration.

Dec. 21.—Yesterday was one of those rapid days, lived to the refrain of "Have I forgotten anything?" and culminating in a well-timed dash for the 6 20 train to New York. We were en route for Toronto—back into the British Empire for Christmas. . . . In the night train from New York were the first sleeping-cars we had seen, outside the cinema Pairs of double seats, facing each other by day, unfold by night and meet, making a series of bunks along each side of the central gangway (American coaches are much wider than English ones) An upper berth also makes its appearance, folding down from the roof, so that two people can travel very comfortably in a "section" The only disadvantages seem to be the walk along the coach to the lavatories and the acrobatic feat of having to undress on the bed. Each bunk is closed in by black curtains Half of our car was like this, and the other half was divided up into "compartments." These were just like the sections in the main car but enclosed and along one side only They contained arrangements for washing. We were rather superior and had a "drawing-room"—the same arrangement of bunks along the window side, plus a third bunk (by day, a couch) along the opposite wall. The lavatory was a separate little room opening off, and the whole was closed by a "front door."

That part of a time-table devoted to fares is bewildering to the novice There is the ordinary coach fare, which is straightforward, and then the Pullman fare, which is not so straightforward, for there is an additional fee for every possible way of travelling—ordinary, compartment, drawing-room, upper berth, lower berth, and so forth. If you wish to sleep in a horizontal position, it is essential to travel "Pullman."

Did I say "sleep"? Marjorie soon settled down in the small bunk, but we were not so lucky The room was very hot, and we played about with the heating and electric fan for a long time Then it was a moonlight night with a good deal of snow about, and Stella, who had the lower berth, kept calling me down my ladder to look at the scenery. I finally refused to take any further interest in Nature and had just dropped off to sleep when there was the most appalling crash, which sat me bolt upright with every hair on end and every nerve tingling. Nothing seemed to be the matter, however, and I tentatively came to the conclusion, subsequently confirmed by further experiences of the same sort, that we had just stopped Again I dozed off, enjoying the silence and absence of motion, when the night was shattered once more by a whole series of crashes, and the train went into convulsions This, we afterwards learnt, was due to a little shunting. The couplings on these trains are automatic. The picture of the guard anxiously wafting coaches together, while the engine driver hangs apprehensively out of his cab, is unknown in this country The cars are joined on the press-stud principle, and the surest way of sticking them together is to drive them hard into each other and then reverse with a sharp tug to make sure the fastening is secure

This morning we were turned out at about 8 o'clock into the city of Niagara Falls, which was covered everywhere with snow and ice We took one of the tours in a car and were shown everything by the driver. The scenes were magnificent and enhanced by the snow. We didn't think the power stations and so forth spoiled the effect at all, though several people had told us we should be disappointed We had some discussion as to whether we should pay a further $2 50 to go into the tunnel behind the Falls, but finally decided to do so—once in a lifetime—and went down to a cellar in the lift. The other two were taken away, and I was led into a large room lined with hundreds of heavy oilskins and having a row of seats with boot-jacks down the middle My shoes were removed and a paper hat put on my head Then I was arrayed in a complete suit of oilskins—sou'wester, coat, gloves, and enormous boots—so stiff that I could hardly move In a few minutes two strange figures appeared, which I presumed to be my wife and daughter arrayed in similar garb to mine, and we were taken down in another lift and left in a tunnel shaped like an enormous T The top limb of the T had four openings to the outside world, the right-hand two of which were right behind the falls. There was nothing to be seen from them but a fringe of tremendous icicles and an impenetrable sheet of roaring water. We were drenched at these openings and were glad of our waterproof armour. The noise in parts of the tunnel was terrifying, and we felt the whole thing might be swept away any minute The tunnel was large enough for us to stand upright but was just hewn out of the rock and left rough with water trickling in here and there Along each side was a row of pit-props, but these are not calculated to inspire confidence in the uninitiated

After crossing the border several times on our tour of inspection, we finally boarded the 'bus which was to enable us to rejoin the railroad on the Canadian side. On the way we partly destroyed a private car by backing into it, much to the amusement of the driver (the 'bus driver), and later we were sternly ejected from our vehicle by customs officials They did not examine our baggage, but when they thought we had been sufficiently chilled—a matter of a few seconds at this temperature—told us to get in again. A long wait at Welland—a waiting-room stuck in an endless expanse of frozen snow—and at last the train for Toronto.

Some days later—Impossible to write a diary in Toronto: too many Christmas parties . . . too many people . too festive altogether. Dull sort of habit, diary writing, anyhow . . . we no longer feel that kind of person at all. I suppose some day I ought to note down the details of this social avalanche . . . but not tonight The University?—solid architecturally vague with an indefinable Scottish flavour, well spaced on a very large site, and nothing small or mean in sight. . . The Connaught Laboratories—unique. A self-supporting blend of research and manufacture (largely insulin), affiliated with its

University Hart House—seems to be a luxurious club for the University, with another church-dining-room containing amusing stained glass windows Cartoons of various academic worthies excellent idea with distinct possibilities distinct possibilities heigh ho good night everybody

Dec 31—There seems nothing particularly odd about sitting here, 3000 miles from home, and making the usual resolutions for the New Year I wonder if the Old Year has infected us with a desire for travelling and if home will seem dull this time next year There is no doubt that we have lost a few corners and have ceased to notice such discomforts as sleeping in the train and living practically in one room In fact we seriously begin to wonder why on earth we habitually burden ourselves with so many possessions and voluntarily adopt so many unnecessary responsibilities such as a house, maid, and garden The ease with which one lives here is very attractive What could be simpler than renting an apartment with the heating, lighting, and refrigeration all arranged for? If anything goes wrong, it is somebody else's job to see to it. The innumerable minor problems of the British citizen do not exist The streets are full of boys anxious to clean one's shoes, and every drug store offers breakfast The whole business is very insidious, and more and more one asks "Why not?"

The trouble is, one becomes so used to a mode of life Last year we were looking forward to the glorious present, next year we shall be looking back on it and wishing it were here again, with all the wonderful opportunities for doing *things* which now never enter our heads

* * *

Twelve months later—That prophecy was only half true Our sins of omission do not trouble us In our most sentimental mood we ask for nothing better than the same again, the chance to complete that conversation begun at a farewell breakfast, a glimpse of X's new baby—is it girl or boy? We have so many treasured memories, so many vivid impressions which remain fresh in our minds

In Washington we have seen the cherry blossom and Judas trees in the sunshine and experienced peace We have stood at the hewn feet of a mighty Lincoln and felt the presence of greatness Sitting on the porch of George Washington's home we have gazed over the placid valley of the Potomac and wondered if somewhere in this scene lay the secret of the inspired vision of a simple country gentleman Further north we have crossed far above the turbulent Alleghany river, already nearly as wide as the Thames at Westminster, and boiling along as madly as any Cheviot burn There are hundreds of these rivers, with three thousand miles to go before they reach the sea as the Mississippi They are wild, magnificent, and ruthless, and lend credibility to their human counterparts in Kenneth Robert's "Northwest Passage"

Shall we ever forget sailing among the islands off Buzzard's Bay, the racing tides in the narrow channels the dazzling uninhabited beach on which we picnicked? Or the wooded shores of Cape Cod in the brilliant moonlight which moved Marjorie to a precocious lyrical outburst

> "There is only one sun, there is only one moon,
> But there are several stars
> Moon, moon,
> Where are you going to?
> Where are you going to, Moon?"

At last came New York's farewell to us as with gradually increasing speed we were borne eastwards She might have looked hard and brilliant, she might have shrouded her head in a cloud, but she did neither She gradually grew indistinct in the dusk, she left the sea and floated in the evening mist, a shadow, pinnacle on pinnacle, turret on turret, full of twinkling lights a fairy castle . the biggest in the world

This concludes the four articles from A Physiologist in America Next month Autolycus will be responsible for these columns—ED L

PUBLIC HEALTH

Vital Statistics for 1938

THE Registrar-General has issued a provisional statement of the figures for birth rate, death rate, and infant mortality for the year 1938

—	Birth-rate	Death-rate	Infant-mortality rate
England and Wales	15 1	11 6	53
126 county boroughs and great towns including London	15 1	11 7	57
148 smaller towns	15·6	11·2	51
London (administrative county)	13 4	11 3	57

The smaller towns are those with estimated resident populations of 25 000 to 50,000 at the 1931 census

Note.—The birth- and death rates for England and Wales as a whole are calculated on the estimated mid 1938 population, but those for the towns aggregates and for London on the estimated mid 1937 populations The birth rate is based on live births and the death rate on crude deaths

The birth rate for 1938 is 0 7 above that for 1933 which was the lowest recorded For the intervening years the rates have been 1934, 14 8 , 1935, 14 7 , 1936, 14 8, 1937, 14 9 The crude death rate is 0 8 below that for 1937 and with the exception of 1930 (11 4) no lower rate is on record The infant-mortality rate is the lowest ever recorded, being 5 below that for 1937 and 4 below that of 1935, the previous lowest record The rates are provisional and are issued for the information of medical officers of health, but they are not likely to need substantial modification

Pneumonia and Influenza

The Registrar-General's latest weekly return shows that 214 deaths were attributed to influenza in the great towns of England and Wales, compared (working backwards) with 144, 80, and 41 in the previous three weeks The ratio of the increase between the weeks ending Jan 14 and Jan 7 has therefore been rather less than that between Jan 7 and Dec 31—namely, 49 compared with 62 per cent. The 214 deaths in the current week are rather more than twice as many (91) as were registered in the corresponding week of 1938 A large proportion of these deaths continues to be derived from northern towns—e g , 25 from Liverpool a slight decrease from the previous week's total, and 20 from Manchester, a considerable increase over the previous week Some rise is to be observed also however in some of the southern towns and in London there were [illegible] deaths compared with 3 and 8 in the two previous weeks. Notifications of pneumonia rose from [illegible] in the week ending Jan 7 to 1793 in the week ending Jan [illegible] but the latter figure is only slightly above the normal expectation In London the notifications still remain relatively low.

INFLUENZA IN LIVERPOOL

At the beginning of December, our correspondent writes, Liverpool began to experience an increase of respiratory infections This soon reached the proportions of an epidemic—an epidemic not specially noteworthy, however, either for the number of patients affected, or for its fatalities. The peak was reached towards the end of the first week in January, with 32 deaths notified as due to "influenza," 81 "total respiratory deaths," and 160 cases of pneumonia in the week. Since then, the numbers have been on the wane. Many of the cases are mild infections of the upper respiratory tract which subside in a day or two with rest in bed and symptomatic treatment A few are accompanied by gastro-intestinal upset; sinus infection and acute otitis media are occasional complications. Pneumonia sweeps off many of the aged, and may be of the fulminant type in a certain small number of younger persons. But the majority of cases are atypical; some are thought to have nothing more than a severe "influenzal cold" until the presence of labial herpes and rusty sputum leads to an X-ray of the chest and the discovery of a central patch of consolidation. Others are seen from an early stage to have pneumonic consolidation and appear gravely ill; but in a few days a surprising degree of recovery takes place, leaving them pale and debilitated, but alive In hospital, and less so outside, the clinical picture is being modified by treatment with M. & B. 693; to what extent will not be clear until a more final analysis. There is little evidence that the epidemic is due to *true* influenza; attempts in certain selected cases to isolate the influenza virus have proved unsuccessful. The predominant organism is the pneumococcus Empyema does not appear to be common, nor does meningitis; a few cases of empyema have shown *Staphylococcus aureus* on culture, and a similar infection of the larynx (with apparent membrane formation) has also been seen in association with pneumonia.

Another Health Centre

The new health centre at Woolwich opened by Lord Horder on Jan. 14 is one of a group of civic buildings surrounding the town hall. Solid in design, yet modern in its planning, it is erected round a court paved with York stone laid in random fashion At the front and sides it is two stories high, but at the rear, where a spacious waiting-hall has been provided, it is of one story only and it has thus been possible to provide a small roof court, capable of being used as an open-air solarium.

The centre provides for a maternity and child-welfare service, an orthopædic clinic, a massage clinic, an electrotherapy section, a school clinic, and dental and foot clinics The ground floor contains the maternity and child-welfare section, and the orthopædic, massage, and electrotherapy rooms There are five special-treatment rooms devoted to orthop edics, electrotherapy (2), and massage (2) a dressing-room, and a bathroom. The upper floor contains the school-treatment rooms—namely, a waiting-room, a minor-ailments room, a doctor's room, an eye-room, and record and clinic rooms All these communicate with one another and can be used as waiting, treatment, or consultation rooms should the occasion arise To the right are the chiropody and dental-treatment rooms.

As the centre would in time of war become a first-aid headquarters, two air-raid shelters, in the form of reinforced concrete trenches 3 ft 6 in. wide, have been installed underneath the car-parks on each side of the building. They are entered from the pram shelters at the rear. The total cost has been £18,066, and the centre has been erected by direct labour, under the supervision of Mr H. W Tee, the borough engineer and architect.

Opening of New Hospital School

The London County Council has established a new hospital school at Goldie Leigh Hospital, Bostall Heath, Abbey Wood, which is used for children suffering from ringworm and other contagious diseases of the skin and scalp, or who are convalescing after other complaints The school, which was opened on Jan. 20, has been built at a cost of about £16,500 It is planned on the lines of a modern elementary school, with certain modifications in the finishings to meet medical requirements, such as glazed-tile dados and flush doors of hospital type Folding doors and sun awnings on the south front of the classrooms allow teaching to be carried on under open-air conditions whenever practicable. The six classrooms each have accommodation for 30 scholars To enable children suffering from contagious diseases to be separated from the others the classrooms are divided into two sections, each of which has a separate entrance and there are heated cloakrooms and lavatories for both girls and boys. One classroom is equipped as a needlecraft room and another is fitted for the teaching of light wood and metal work There are two playgrounds and a games field is also available The instruction is almost entirely individual; an effort is made to secure steady progress in the "three R's" and some oral classwork of subjects of general knowledge is undertaken as well as lessons by radio and cinematograph film Considerable time is given up to handicrafts Senior girls receive training in the making of lingerie, fine knitting, embroidery, and leatherwork, and senior boys learn woodwork, metalwork, and elementary bookbinding. Rugwork, basketry, and seagrass seating are also taught, with a variety of simpler occupations for juniors.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED JAN. 14, 1939

Notifications.—The following cases of infectious disease were notified during the week: Smallpox, 1 (port of Liverpool); scarlet fever, 1505; diphtheria, 1186; enteric fever, 21 (23 "expected"); pneumonia (primary or influenzal), 1793; puerperal pyrexia, 176; cerebrospinal fever, 43; acute poliomyelitis, 17; encephalitis lethargica, 1; relapsing fever, 1 (Looe, Cornwall); continued fever, 1 (Kensington); dysentery, 38; ophthalmia neonatorum, 102. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the Lond County Council on Jan 20 was 3255, which included. Scar fever, 585; diphtheria, 1059 (carriers, 43), measles, whooping-cough, 703; puerperal fever, 15 mothers (pl 7 babies); encephalitis lethargica, 297, poliomyelitis, At St Margaret's Hospital there were 31 babies (plus mothers) with ophthalmia neonatorum

Deaths.—In 126 great towns, including Lond there was no death from smallpox, 4 (0) from ente fever, 3 (0) from measles, 3 (0) from scarlet feve 14 (3) from whooping-cough, 32 (4) from diphthe 52 (12) from diarrhœa and enteritis under two yea and 214 (19) from influenza The figures in pare theses are those for London itself.

West Ham reported 2 deaths from typhoid, East Ham a Wimbledon each 1 Fatal cases of diphtheria were scat

(*Continued at foot of next page*)

LETTERS TO THE EDITOR

X-RAY THERAPY FOR TOXIC GOITRE

SIR,—The accumulating evidence that X-ray treat- ent is valuable in toxic goitre is of great interest us, but, when the writer of your annotation on us subject of Dec 31 (p 1530) remarks that, if the sults are so good "it is difficult to understand hy a form of treatment which has had an extensive al in the past should have been largely abandoned," e feel that if he had looked up the literature before 938 he would perhaps have been informed Though, e believe, *before* the war certain physicians like r Florence Stoney obtained reasonable results with g doses of small penetrative power that endangered e skin, it is really only since the advent of "deep rays" in the early 'twenties that efficient treatment s become possible, and our first patient began his xposures in 1924 (*Lancet*, 1934, 2, 535) By this me operative treatment had obtained a good start, ence the delay in recognition On Nov 9, 1937 at demonstration at the Royal Society of Medicine, ut of 28 patients who had been observed for two ears and more, 21 (75 per cent) might be regarded s "cured"—i e, could do their former work without ifficulty—whilst the remaining 7 were improved (*Proc Soc Med* 1938 31, 371) This was a better result han we had been able to report in 1934 The length f time since treatment was instituted was from to 12½ years (average 6¼), and the age at the eginning of treatment was from 18½ to 66 years average 40½)

A point of great importance is the actual dosage o be employed, this question was raised at Cambridge last summer at a demonstration of patients reated by the staff of Addenbrooke's Hospital Our echnique is as follows —

Five ports of entry, each extending from above the upper limit of thyroid to below the sternal notch—viz.

1 right anterolateral
1 right posterolateral
1 left anterolateral
1 left posterolatoral
1 central anterior

Voltage 185–195 kV
Filter 0 85 Cu plus 3 mm Al
Applicator 64–100 sq cm
Distance usually 35 cm

The ionisation chamber as used is at a fixed distance of 29 cm and 800–900 r units are given to each area he slight variations shown are according to size of he gland and occasionally the distance is increased o 40 cm if the thyroid is very large, the number of units being increased accordingly It is advisable o prescribe a few minims of 10 per cent iodine in pirit to prevent reactions

The second course is given in three months if ecessary, and others are given three-monthly as equired

We are, Sir, yours faithfully,

F P POULTON,
W L WATT

London, W 1, Jan 21

(Continued from previous page)

ver 22 great towns, 4 at Liverpool 2 each at Hull South Shields Bristol and Chesterfield Of the 214 deaths attributed o influenza 141 were reported from the Northern Area Liverpool contributing 25, Manchester 20 Blackpool Bolton and Salford each 7 Birkenhead and Wallasey each 6, St. Helens 4, Barrow in Furness Sheffield, Southport and Warrington each 4 and 27 from the Midland Area Birmingham contributing Gloucester 4

The number of stillbirths notified during the week was 203 (corresponding to a rate of 38 per 1000 total births), including 30 in London

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PSYCHOTHERAPY BY LAYMEN

SIR,—Your leader seems to ignore most of the real facts about lay psychotherapy I write as a general practitioner who is interested in the Guild of Pastoral Psychology Lay psychotherapy exists and increases not because it is cheaper than medical psychotherapy but because it is quite different Every general practitioner is perplexed by an immense number of people who do not suffer from any definite physical or mental disorder but are miserable because they do not know how to order their lives in the modern world Their problems are not medical, and they are not suitable for treatment by medical psychotherapists What they want is educational treatment, "social adjustment and relatively simple advice," and instruction in the principles of sensible living

This is the work that the Guild of Pastoral Psychology is training ministers of religion to perform It is not medical work Some general practitioners can do it and do it admirably, but they are not many, and few of them have the time to spare Moreover, the work needs not only a knowledge of psychological principles but also a right adjustment to spiritual reality All members of the Guild of Pastoral Psychology are pledged to obtain a medical examination to ensure that their "cases" are *not* suffering from physical or mental "disease" As I conceive the work of the pastoral psychologist—and as I know the guild intends—any patient who needs physical treatment would continue to attend the doctor's surgery regularly while visiting the minister for pastoral psychology

The medical profession would do well to realise three things The first is that lay men and women will do this work increasingly, whatever the doctors may say The second is that doctors make no collective and very little individual attempt to fit themselves to do it Thirdly, unless the medical profession will help the "pastoral" psychologist to learn—as he ardently wants to—where his educational or cultural territory ends and where medical territory begins, overstepping of the line becomes unavoidable

I am Sir, yours faithfully,

Worcester Park Jan 23   ANN HARLING

SURGERY IN ULCERATIVE COLITIS

SIR —The questions raised in your leading article on Jan 21 and by Dr Gaha in the same issue are of great importance Although it is now many years since ulcerative colitis began to be seriously studied it is evident that there is still much doubt as to the best method of treatment This is partly because most of those who have written on the subject have failed to distinguish between the different types of the disease

In a considerable experience of such cases I have noted that there are four main types —

(*a*) Mild cases where the symptoms are never very severe

(*b*) More severe cases which clear up on medical treatment fairly readily, but persistently recur

(*c*) Bad cases, which are most resistant to treatment and get progressively worse.

(*d*) Acute septicaemic cases generally in young people, which are usually fatal

The first two types are best treated medically [illegible] do not call for surgical interference, except persistent relapses and prolonged [illegible] often most [illegible] occupation, and on this account appendicostomy may be of benefit in cutting short the attacks and reducing the periods of incapacity I have frequently seen most beneficial results from the operation in such cases, patients who had become chronic invalids putting on weight and being able to return to an active and useful life It is in the third type, however, that surgery is particularly called for These patients seldom show much improvement under purely medical treatment, and I agree with the writer of your leading article that if marked improvement has not occurred in three to four weeks surgery should no longer be delayed, appendicostomy in my opinion being the operation of choice. In the fulminating fourth type nothing is likely to be of any use, but there is reason to believe that some of these cases may be saved by the administration of sulphanilamide

The particular surgical procedure that should be adopted in any particular case must depend upon circumstances, but operations such as colostomy and cæcostomy are most undesirable and in my experience have given no better results than appendicostomy, while their inconveniences are obvious Ileosigmoidostomy and other short-circuiting procedures are dangerous in patients who are both in a very low state of health and septic, and have not proved satisfactory. Appendicostomy has the merit of involving little risk: it can, if necessary, be carried out in the patient's bed under local anæsthesia, and provided it is not done too late results in rapid improvement of the patient's condition. It does not, of course, "eliminate infection" but by enabling the pus and debris from the ulcerated mucous membrane to be washed away gives the latter a chance to heal; and if cases are watched with the sigmoidoscope it can be seen that this is actually what happens

The mortality figures from the operative treatment of ulcerative colitis that have been published are quite unreliable, as far too often surgery has only been resorted to when all other methods have completely failed and the patient has passed the stage in which recovery was still possible. Appendicostomy done in time, and in suitable cases, will very seldom fail to result in curing the condition and in reducing the incidence of relapses.

I am, Sir, yours faithfully,

J. P. Lockhart-Mummery.

Harley Street, W 1, Jan. 23

SELF-CONSCIOUSNESS AND PUBLIC SPEAKING

Sir,—In thanking Dr. Snowden for his useful article in your issue of Jan. 14, may I add a few notes. With a long personal experience of the speaker's self-consciousness in myself and others from school-days on, I differ from Dr. Snowden only as regards the nature of the fear of which he speaks There is surely no need to suspect any atavistic basis for this fear. It is a fear merely of what the audience, especially certain individuals in it, may say or think of the speaker's matter, style, manner, or personality. Keenness on his matter and the focusing of his attention on the aims of his speech are the speaker's main safeguards; subsidiary are the rules to avoid catching the eye of known individuals and to begin by addressing the wall, flags, pictures, or notices at the end of the hall or room. The speaker must steel himself to think mainly of and to address the sympathetic minds of those whom, in imagination, he is leading, and only secondarily should he take note of important criticism, treating this not as opposition but as genuine difficulties to be sympathetically explained. This sympathy, in a mixed audience, with excursions from grave to gay, from general to local, from long-term to short-term objects must be cultivated

To the rules for public speaking there may be added the need especially to emphasise the final consonants of each word, to slow down towards the end of a phrase, and to pause between sentences and especially between paragraphs and sections. The most painful task is to lead up to and encourage applause, wait for it several seconds and get used to the silence In teaching a man to speak in public surely it is wrong to draw his attention to the physical symptoms of fear To do so is to make him notice them. He should be so keen on his matter, aims, and audience that he does not notice them He should not even know of them

In composing an important speech the speaker should first state what he is going to say, then say it, and lastly sum up what he has said. But practice is everything He must learn to pose, out of respect for his responsibilities and himself, he must take any opportunity of beginning in small ways, as in seconding a vote of thanks; he must offer his services, however small, and not wait to be asked. Practice alone makes perfect Would that every medical man would in common sense learn so to express himself in public as he invariably does in private He does not mind committing himself on paper or to a committee or court of law or a professional gathering It is ridiculous that he, we, and the community should lose so much influence and power from fear of standing on a platform.

I am, Sir, yours faithfully,

Hatfield, Jan 19 Francis Fremantle.

"THE G.M.C. UNDER FIRE"

Sir,—In your annotation last week under this heading you point out, quite rightly, that infringement of professional rules by eminent persons could be met by action "open to members of the M.P.U itself." It would be a pity if your readers should suppose that such action had not already been taken. Not very long ago I myself, in pursuance of the union's policy, initiated an action against an eminent medical man who was rather given to after-dinner speeches and other public utterances in which he held up to opprobrium his colleagues in general practice. It was part of the case that he did this without warrant of truth or public policy, and it was proposed to bring due proof of all allegations Indeed, the facts were not in dispute. It will be noted that this was not a case of canvassing or advertisement but one of alleged unprofessional conduct in vilifying colleagues in speech and in the public press. It was a test-case covering questions which have not hitherto been brought before the G M.C Nevertheless, the council never had an opportunity to pronounce upon it. It was decided by the penal cases committee, and the decision notified to me, during an interval between meetings of the council. The decision was that the case should not be allowed to go forward. The mere fact that a test-case of this sort, a case arising out of circumstances which were unheard of when the council was formed, should be turned down by a committee without the council's knowledge or approval goes far to discredit the G.M.C. and to justify the views of the Medical Practitioners' Union.

But the case has not been without result The eminent person has been very quiet of late, and other eminent persons seeking a cheap notoriety by slander ing the general practitioner have been much more silent Should there occur any fresh example of like unprofessional conduct, there need be no doubt that it also would be brought before the G M C if it could be properly proved No one supposes that a barrister or other professional man who publicly slated his colleagues would be protected by his professional organisation and one hopes that the G M C would abandon their present attitude to such matter

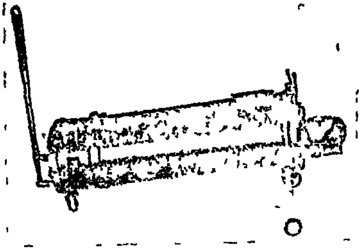
I am, Sir, yours faithfully,

Sevenoaks, Kent, Jan 20 GORDON WARD

THE "IRON LUNG"

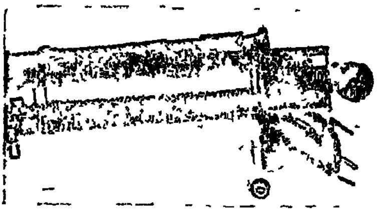
SIR,—In your issue of Dec 24 last Sir Leonard Hill points out that when Drinker's "iron lung" was brought to this country in 1930, and purchased by a manufacturer, in accordance with medical custom patents were not taken out It should not be forgotten however that three American patents had already been granted to Philip Drinker In 1935 the licencees under the patents brought an infringement suit against a second firm which had begun to manufacture similar mechanical respirators in 1931 (Rossman, J , *Science*, 1935, 82, 221) This action at law failed, and the patents were declared invalid on the ground *that all the claims of the* patents had been anticipated by earlier publications

Sir Leonard states that the various modifications of the machine introduced into England *in 1930*, including the one being presented by Lord Nuffield, are all "on Drinker's principle and in justice to him should be referred to as *Drinker respirators*" Whilst it is true that Prof Drinker produced a serviceable machine at a time when it was greatly needed, the credit for the first application of the underlying principle to a successful mechanical respirator belongs not to him but to the late Dr Woillez, whose "spirophore" was invented in 1876 and described by him to the Académie de Médecine on June 20 of that year It consisted essentially of a steel cylinder enclosing the body of the patient, a rubber collar round the neck providing an air tight seal The hand operated pump was incorporated in the cylinder itself The machine promptly earned a silver medal at an exhibition of life saving devices at Havre In spite of the persistent desire of the maker of the apparatus, Dr Woillez refused to patent his invention "Idée," remarks a recent commentator "bien française et nullement américaine" (Woillez, A , *Bull Acad Méd Paris* 1938, 119, 82) At a later date, a similar apparatus was for a long time in use at Strasbourg



The spirophore closed

I do not seek in any way to belittle the part played by Prof Drinker in the development of the modern "iron lung," but if we are to acknowledge that the credit for the introduction of the principle belongs to any one man, then we must undoubtedly award that distinction to Woillez If an eponymous classification of mechanical respirators be deemed to be inevitable, all variants of the spirophore (such as those of Drinker, Emerson, and Both) should in future bear the name of Woillez in addition to that of their immediate inventors



The spirophore open

I am indebted to Prof C Achard for permission to reproduce the accompanying illustrations from the *Bulletin de l'Académie de Médecine*

I am, Sir, yours faithfully,

C L G PRATT.

Department of Physiology, University of Oxford Jan 21

MULTIPLE ANÆSTHESIA

SIR,—Dr Blair Gould takes us to task for using an unjustifiably complicated technique Our justification lies in our results, which are better than we can show with any other form of inhalation anæsthesia For example, of 47 consecutive tonsillectomies anæsthetised by the usual methods 28 vomited , of 45 anæsthetised by the method we have described, 6 vomited It is inconceivable that a drug which is as toxic as Dr Blair Gould would have us believe should leave the patient with so little evidence of harm

As to complexity, we discover the residents have used the method on several occasions with complete success If Dr Blair Gould will try the technique for himself, and visit his patients afterwards, we feel he will be less satisfied with his present methods

We are, Sir, yours faithfully,

RONALD J B BROAD,
GEOFFREY ORGANE

Westminster Hospital, Jan 23

PLACENTAL BLOOD FOR TRANSFUSION

SIR,—*I was interested to read Dr Howkins and* Dr Brewer's paper in your last issue because recently I conducted similar experiments with placental blood while working at the *Royal* Northern Hospital London, and arrived at the same conclusion—viz , that the technique was too laborious to be of general practical value

I took blood from the end of the cord, according to the method suggested by Goodall Anderson, Altimas and MacPhail and also with a three way syringe from the umbilical vein The latter method gave slightly better results as regards sterility, but the quantity of blood tended to be less I took all the specimens myself and found that, after the first few cases, sterility was almost 100 per cent, both to aerobic and anaerobic culture. The amounts of blood obtained were much the same as those of Howkins, and were considerably less than those mentioned by Goodall.

As for the preservative solution I also found that unreliable, and when I was in Moscow last summer I discovered that it was unknown there; if they use a preservative at all it is a 5 per cent. (sometimes 10 per cent.) solution of sodium citrate In the Ukraine placental blood is actually used for transfusions, although most blood is obtained from voluntary donors as in London They do not always use the blood immediately, as we do, but it is never, kept longer than five days because of the demand Mild reactions are fairly frequent, but severe ones, with rigors and so on, are uncommon.

I am, Sir, yours faithfully,
G. DALLEY.

Albion Mews, W 2, Jan 23

PROPHYLAXIS WITH SULPHANILAMIDE

SIR,—In your issue of Jan. 14 Dr. Reginald Lightwood raises a query as to the possibility of damage to the hæmopoietic system of the fœtus from the prophylactic use of sulphanilamide or M. & B. 693.

It is true that the fœtus will have a fairly high concentration of sulphanilamide in its blood during labour, since H. L Stewart and J. P. Pratt (*J. Amer. med Ass.* 1938, **16**, 1456) found that the amount of sulphanilamide was approximately the same in maternal and cord blood; but this will usually be for a matter of hours only and the concentration will fall rapidly after birth The amount of sulphanilamide which the baby will get from the milk during the following days will be very small indeed—something in the order of 0·02–0 06 g in 24 hours (Stewart and Pratt; S. S Pinto, *J Amer. med Ass.* 1938, **21**, 1914)

Mr. Bryan Williams in a paper read before the North of England Obstetrical and Gynæcological Society reported on the prophylactic use of Prontosil album in 257 cases, and in a personal communication to Dr. L Colebrook stated that no toxic effects were observed in any of the babies I agree that a careful watch should be kept for any toxic signs in the baby, but I think it is unlikely, from a consideration of the above facts, that any will occur.

I am, Sir, yours faithfully,
EDWARD D. HOARE.

Queen Charlotte's Hospital Research Laboratories,
Ravenscourt Square, W 6, Jan 23

OXYCEPHALY

SIR,—May I clarify the point which Dr. Ferriman raises in his interesting letter in your issue of Jan 14? He wishes to know whether my histological findings in the case of oxycephaly, recently recorded in your columns, support the hypothesis of Park and Powers These authors consider that oxycephaly is due to absence of the limiting activities of the suture lines in the membrane bones of the skull, a fact of which I was not aware when reporting these sections My findings appear strongly to support this view. In describing the microscopic appearance of the bones of the skull, I said that "there was considerable evidence of osteoblastic activity to indicate that bone formation was proceeding briskly." I did not intend to imply that this process exceeded the normal rate of bone formation in the fœtal skull at term. There was certainly no evidence of "vicious or pathological excess" of bone formation at the "sutures." As regards the vascularity of the bone, there did not seem to be much difference betwee the normal fœtal and the oxycephalic skulls

It seems possible that a study of oxycephaly, at first sight merely a repulsive deformity, may shed some light on the process of normal joint formation and the mechanism which controls the growth of bones I am, Sir, yours faithfully,

R S. HANDLEY

Bland-Sutton Institute of Pathology, Middlesex
Hospital, London, Jan 19

LEPROSY

SIR,—In a review of my book on leprosy in you issue of Jan. 14 (p 96) you allude to my denial o the successful infection of experimental animals wit the human leprosy bacillus Unfortunately that par of the book had already been written before report about hamsters came in As a matter of fact, w cannot yet say that leprosy can be transmitted in progressive form to experimental animals, though w hope that the difficulties will soon be overcome Dr Adler, in Jerusalem, has still failed to transmi the disease beyond the second series of hamsters, o at least he had at the end of August when I visite him and saw his work

I am, Sir, yours faithfully,
E. MUIR,
Medical Secretary, The British Empire
Leprosy Relief Association.

London, W 1, Jan 18

THE FEET OF THE INDUSTRIAL WORKER

SIR,—Mr. Cochrane in his letter of Jan. 7 elucidate most clearly the many factors which contribute t foot-strain He then says: "It is not possible, s bad are man's sensory impressions, to attain th fully erect position of the body without training o a special kind . . . All the detail for the physica restoration of these people—by rehabilitating rest to recover lost tone, by re-education in correct breathing and voluntary control of the trunk and abdominal muscles—are well known and practised by orthopædists It is a complete art in itself, this correction of faulty use of the body . . Let us unite to cure the 'chronic case' by the practice of real orthopædics"

Whilst in complete agreement with Mr Cochrane's views on the subject may we hope that he would agree with us in thinking that the special work o re-education (which comes nearer to "teaching" than "treating") can be undertaken by practitioners specially trained in this work—namely, the members of the Chartered Society of Massage and Medical Gymnastics? Members of the Chartered Society have for many years been foremost in demonstrating the value of corrective exercises and by reason of the fact that they work in close coöperation with doctor or surgeon are in a position to exercise the "complete art" which Mr. Cochrane most justly recognises, with fullest advantage to the patient concerned

I am, Sir, yours faithfully,
L D BAILEY,
Chairman of the Council, The Chartered Society
of Massage and Medical Gymnastics

Tavistock House, Tavistock Square, W C.1, Jan. 17

". . . The idea that publicity is disreputable has to be scotched No public activity outside the Secret Service can to-day fully secure its ends unless it equips itself with efficient arrangements for interpreting to the public its objects and the measures taken to secure them. That is an essential and an honourable part of the job" —SIR STEPHEN TALLENTS reported in *Birmingham Post*, Jan. 10, 1939

OBITUARY

HERBERT HENRY WOOLLARD

M D MELB , D SC LOND AND MELB , F R S

THE sudden death of Prof Woollard on Jan 18, at the early age of 49, came as a shock not only to his friends but to all those who are concerned with the development of anatomical teaching and research in this country It is not easy to assess his work briefly , but his contributions to anatomy, direct and indirect, were so notable that it is at least some consolation to reflect on some of his achievements

Herbert Henry Woollard was a product of Melbourne University where he took his medical degree in 1910 He played an active part in the late war, and attained the rank of a lieut colonel in the Australian army medical service After the war he came to England with a view to working for the fellowship of the Royal College of Surgeons, and for this purpose entered on a course of studies at University College, London It was in this way that he came under the inspiring influence of the late Sir Grafton Elliot Smith, an influence which was destined to make him completely alter his plans For after passing the primary fellowship examination he decided to take up the study of anatomy as a scientific career, and to this end he was appointed a demonstrator of anatomy at University College

Woollard immediately threw himself with all his energy into his work, and although he was at first involved in a considerable amount of routine teaching (because of a temporary shortage of teaching personnel), he was soon producing original work of a very high standard His association with Elliot Smith naturally directed his attention first to comparative neurology and the comparative anatomy of the primates, and this interest is reflected in some of his earlier papers His monograph on Tarsius was outstanding for its detailed analysis of the macroscopic and microscopic structure of this remarkable animal, and it had a considerable influence on the interpretation of its position in primate phylogeny Other publications of a similar nature dealt with the cerebral cortex of Tarsius, the brain of Orycteropus, the geniculate bodies of lemurs, and the retina of primates All these papers were distinguished by an originality of approach, and by an insistence on the functional significance of structural variations It is probably true to say, however, that Woollard was never quite satisfied with descriptive studies of this kind, and that he realised from the start of his career that anatomical problems must be attacked by experimental methods in order to attain results that can in any way be regarded as final and conclusive

This attitude of mind was further developed during the year which Woollard spent at the Johns Hopkins school of anatomy in America as a fellow of the Rockefeller Foundation Here he came into close contact with a number of American anatomists who at that time were using and developing experimental techniques in many different directions, and he himself became established as essentially an experimental anatomist As the result of his work in the States he completed three highly important papers—one on the development of the limb arteries as demonstrated by the micro injection of living embryos, one (with Wislocki) on the phagocytic activity of hæmal glands, and another on vital staining of the meninges In this last it was shown that the mesothelial cells of the pia arachnoid are capable of being transformed under conditions of irritation into freely mobile macrophages

On his return from America Woollard continued his work at University College, and in 1927 he was appointed assistant professor At this time some of his best research work was accomplished, dealing with the innervation of the heart and blood-vessels, and with the degenerative changes associated with beri-beri He acquired a very high degree of skill in the application of the difficult technique of vital staining with methylene blue, and he used this method to great effect in his study of nerve terminals He also published in 1927 his "Recent Advances in Anatomy" More than anything else this book has been responsible for stimulating a progressive development in anatomical teaching and research in this country The static type of anatomy which had become traditional appeared sterile as regards any future development, and in its application to the medical curriculum it had come to surpass the bounds both of expedience and decency "Recent Advances" called vigorous attention to the vitality of anatomical science in other countries (particularly the United States), and demonstrated that as a means of approaching problems of structural organisation the methods of experimental anatomy offer unique opportunities Woollard's influence made itself felt by several of his contemporary colleagues, and it can be truly said that he was responsible for initiating a movement to reorientate and revivify anatomy, a movement which is just now, at the time of his death, beginning to gather in momentum

Elliott and Fry

In 1928 Woollard was appointed to the chair of anatomy at Adelaide University Two years later, however, the chair of anatomy at St Bartholomew's Hospital medical college became vacant and his appointment to this position brought him back once more to England It is interesting to recall that his appointment was viewed with apprehension in some quarters, on the ground that since he had been so prolific in research he would therefore not be likely to be interested in or give due attention to, his duties of teaching and departmental organisation But this fear was entirely unfounded His critics had little realised the extent of his energies and his conscientious attitude towards his routine duties He had accomplished his extensive programme of research not by neglecting his other duties but by putting in about twice as much work in twenty four hours as many of his fellow anatomists. He spared himself not at all, and at one time in his career it was unusual for him to leave his laboratory before midnight. His industry and tirelessness were amazing, more especially in one of not too robust a physique Asked how he came to have so good a knowledge of German (he was the author of "The Scientific Basis of Anatomy"—an English version of a German book on the Philosophy of Anatomy) he replied that he had never lived in Germany; yet on being challenged he proceeded to read at random from a German technical book, translating as fast as he could speak He had mastered the syntax and written word, without any aid but his intelligent use of textbooks and a dictionary, when faced by the necessity of undertaking the translation of the Philosophy.

The appointment at Bart's was an unqualified success Not only did Woollard distinguish himself by the stimulating character of his teaching and his powers of organisation, but he proved himself to be an ideal collaborator with his clinical colleagues. The latter were not slow to recognise his qualities, and continually sought and received his advice and help in all problems which had an anatomical reference. Anatomy meant to him appreciation of function as well as of structure: he regarded radiological apparatus as an essential part of his equipment, and the teaching of minute as well as naked-eye structure as the province of the anatomist. Although he was one of the pioneers of the scientific and academic outlook in anatomy he had formulated his objective before he became a teacher and while he was still in medical practice, and thus arose the interesting paradox that the man who was feared by examination candidates because of his "scientific" outlook was the very man who really knew what was most appropriate for medical students in the ancillary subjects. The student who knew his ordinary anatomy reasonably well and understood something of its application to modern surgery had nothing to fear from him, no matter what form the actual examination might take "In many years of examining," a colleague says, "I have never met so quick and accurate, and yet so generous an assessment of a candidate's abilities and potentialities"

When he finally left St Bartholomew's on an invitation to the chair of anatomy at University College (which had become vacant on Elliot Smith's death), Woollard left behind him a permanent memorial in the magnificent new department of anatomy which he was responsible for planning and equipping. He quickly rose to the executive of any institution he served and at Bart's as elsewhere his intense interest in the medical college, his loyalty, and his administrative gifts brought him power which he used with vision and discretion.

Woollard's appointment to University College in 1936 was welcomed by all his colleagues as appropriate, and indeed inevitable. He rapidly collected in his department a small band of enthusiastic and devoted workers who engaged themselves in several productive lines of research under his direction and guidance, and it became evident that University College was likely in the future to uphold its reputation as a breeding-ground of anatomists. As regards his own research, Woollard now concentrated his attention mainly on problems of peripheral sensation. He had for some years been using himself as an experimental subject and aimed at correlating the distribution of different sensory spots in his own skin with different morphological types of nerve-ending It is a tribute to his enthusiasm for his research that this method of experimentation involved not a little personal discomfort in the numerous small but painful operations which he permitted to be carried out on himself, in order to obtain material for histological study. In 1936 and 1937 several papers were published recording the results of these observations, and in 1938 the importance of his work was recognised by his election to the Royal Society.

It was just at this stage of his career that Woollard died. He himself was in the middle of a comprehensive and systematic programme of research, a number of junior members of his staff were being effectively trained by him in methods of teaching and research, and his flourishing department showed every sign of developing into an even more distinguished centre of anatomy. It is no wonder that his colleagues and those who are interested in medical education in London feel shocked at the loss which they have sustained.

We owe much of this record to Prof W E. Le Gros Clark, who writes in conclusion: "Woollard was one of those men who for weeks and months on end give all the energy of which a human being is physically capable to sheer hard work. He worked continuously, for his students and demonstrators for his department, for his school and university and for the subject which he represented so effectively Only his most intimate friends knew that during th last two or three years he was often working agains almost intolerable odds He himself suspected cardiac trouble because of the acute anginoid pain which attacked him from time to time, and his suspicions were shown to be well justified at his death Yet the physical and mental strain that were thus imposed upon him did nothing to deter Woollard from fulfilling his duties to the utmost We mourn a colleague of singular nobility and tenacity of purpose, and a friend of a most lovable character.' Others speak of his brilliance in conversation—his rapidity in attack and his ready repartee—and his generosity to other people's labours. "I their work was genuine scientific work, a seeking after truth, he would regard it, however small an effort, as quite as important as anything he had ever done himself."

Thinking of him first as a teacher, a close associate Prof. John Kirk, recalls that like his great predecessor at University College, Woollard believed that the teacher's duty was not so much to reiterate the facts which were already made abundantly plain to every zealous student in the laboratory and dissecting room, but to emphasise the interpretation of these facts and to give the student a true understanding of the processes which had brought structure to its final form, perfectly adapted for its destined function "It was little wonder, then, that so many of his students entered into their heritage and were able to grasp the significance of anatomy as a science as well as a vital part of the medical curriculum Like all true scientists Woollard was a tireless worker because he loved his work, and he was a stimulating teacher because his lectures were fresh and replete with his own thought and inquiry which ranged from the heart to the periphery of his subject

"His memory of things which he had seen and heard and read," adds Prof. Kirk, "was remarkable. In his research-work he was in excelsis. His own personal output as well as that to which he inspired others who worked under his suggestion and guidance was enormous. It was never work merely for work's sake but always the response to some problem which cried out for solution and which would provide the key to a better understanding of physiological or pathological processes. Terra cognita and regional anatomy which had already been explored and mapped in detail made little appeal to his fertile mind It was the circumference of the ever-widening circle of anatomical and physiological knowledge which attracted him and for which he spread around him a contagious enthusiasm

"The title of his well known publication 'Recent Advances in Anatomy' was typical of the man and no one could have done it better In his private room at University College there hung a translation of Pavlov's Bequest to the Academic Youth of his country, dated Feb 27, 1936 :—

Perfect as is the wing of the bird it never could raise the bird up without resting on air Facts are the air of a scientist Without them you never can fly Without them your 'theories' are vain efforts But learning, experimenting, observing, try not to stay on the surface of the facts Try to penetrate to the secret of their occurrence, persistently search for the laws which govern them. Be passionate in your work and your searchings

This was Woollard speaking as well as Pavlov. It is not surprising, therefore that at the comparatively early age of 49 years he had lived a life so fruitful in its results and so useful to his fellows Those of us who were privileged to enjoy his friendship and leadership feel a loss which cannot be put into words and our deep and understanding sympathy is with the inner circle in the home where as husband and father he is missed most of all"

MEDICAL NEWS

University of Oxford

On Jan 19 the degree of B M was conferred on S Durham and J E Duffield

Dr B G Macgraith has been elected dean of the medical school for four years

The degree of M A was conferred by decree on Dr A H T Robb Smith, Nuffield reader in pathology

University of Cambridge

On Jan 21 the following degrees were conferred :—

M A.—W S Feldberg (university lecturer in physiology)

M B, B Chir—E P Jowett, W R Gavin R H H Williams, John Watson, G H Evans, E S Dismorr, E W Somerville, C W C Gough C J Rooke R C H Tripp and M McC Wilson (by proxy) H L Porter A G H Clay, John Clutton Brock, A L Phillips, B M Wright, J R Bignall B R Bray M E Moore J M Wilkin, G A Fowler, G C Pritchard, Derek Russell Davis, C H C Dent, and T G S James

M B—C E Elliott and R. G Bickford

Society of Apothecaries of London

At recent examinations the following candidates were successful :—

Surgery.—N B Eastwood, J B Headley Blythe, and R Rowlandson

Medicine.—H B O Cardew E M L Decottignies, N B Eastwood, V W J Hetreed and E S Nicholson

Forensic Medicine—H B O Cardew, E M L Decottignies, N B Eastwood, V W J Hetreed, and E S Nicholson

Midwifery.—N P Desai, M C Mair, J C Scott E A Spouse, and P P Vaidya

The following candidates, having completed the final examination, are granted the diploma of the society entitling them to practise medicine, surgery, and midwifery H B O Cardew (Guy's), E M L Decottignies (King's Coll Hosp), J B Headley Blythe (Bart's), V W J Hetreed (St Mary's), E S Nicholson (Oxfd and Guy's), and R Rowlandson (Camb and Guy's)

University of Wales

At recent examinations at the Welsh National School of Medicine the following candidates were successful :—

D P H

Part II—Jennet Evans, Anne F M Herbert, and Mary M M Llewellyn

International Congress of Comparative Pathology

The fourth International Congress of Comparative Pathology will be held in Rome from May 15 to 20 Further information may be had from the hon secretary of the British national committee, Mr Fred Bullock, LL D, 9, Red Lion Square, London, W C 1

Royal Institution of Great Britain

On March 10 at 9 P M, Prof E D Adrian F R S, will deliver a Friday evening discourse at the Royal Institution, 21, Albemarle Street, London W 1 He will speak on the development of the sense of hearing

Hunterian Society

On Thursday Feb 9, at 7 30 P M, this society will hold its annual banquet to commemorate the anniversary of the birth of John Hunter It will take place at the May Fair Hotel Berkeley Street, London, W 1, and the Lord Mayor of London will be present

The title of Mr Sampson Handley's Hunterian oration, to be delivered before the Royal College of Surgeons at 4 P M on Feb 14, will be Makers of John Hunter

Course on Industrial Hygiene

A short intensive course on industrial hygiene, including industrial physiology and medical industrial psychology, will be held at the London School of Hygiene and Tropical Medicine, Keppel Street, W C 1, from Feb 6 to 17 Further information may be had from the secretary of the school

Postgraduate Courses in Germany

International postgraduate courses in the various specialties will be held in Berlin, Vienna, Hamburg, Cologne, Munich, and other medical centres during 1939 Further particulars may be had from the bureau of the Berliner Akademie für ärztliche Fortbildung, Robert Koch Platz 7, Berlin, N W 7

Medical Society of Individual Psychology

The annual dinner of this society was held at the Florence Restaurant on Jan 19, with Dr H. C Squire in the chair Prof John Macmurray, who proposed the toast of The Society, asked his hosts why they called themselves "individual psychologists," for Adlerian theory always laid stress on the social character of human motives and behaviour He thought the fundamental humility and broadmindedness which were its tenets created a favourable atmosphere for an association of people who were capable of making a stand against sectarianism and were willing to envisage a modification of views they had hitherto held He felt that this attitude was of fundamental importance today, for we were part and parcel of a sick world and the centre of the trouble was always psychological We were living in a period of scientific development in human relations with one another and the only solution to our troubles lay in that field Yet we resolutely turned our eyes away from any question of changing ourselves and insisted that the difficulties lay in the external world At the beginning of the "Contrat Social" Rousseau said he would take men as they are and societies as they ought to be We were still saying the same today But what was society, Prof Macmurray asked, but people in relation to each other? He often heard it said that all our troubles were economic but why should economics be considered an objective science governed by inexorable laws? Was it not really a study of human behaviour in one particular field? The real problem of our world was the rational ordering of personal relationships and if we did not solve it our civilisation would be thrown on the scrap heap He thought that the society was peculiarly fitted to help in this task and he wished it long life and prosperity The Chairman, who said he rose as a simple squire among professors and dukes, replied for the society, and Dr Alexander Sandison welcomed the guests in a witty and graceful speech Mr Ashley Dukes who replied, confessed (without inhibition) that he enjoyed after-dinner speaking enormously, and proceeded to delight his audience and himself

Medical Cruise to Egypt

The *Bruxelles Médical* is arranging a cruise to Egypt and Upper Egypt at Easter this year. The tour will leave Marseilles on March 31. Further information may be had from the secretariat, 89, Boulevard Adolphe Max, Brussels

Naval Medical Compassionate Fund

At a quarterly meeting of the directors of this fund, held on Jan 20 with Surgeon Vice-Admiral P. T Nicholls, medical director-general of the Navy, in the chair, the sum of £126 10s was distributed among the several applicants

Hospital Management

The Royal Sanitary Institute is arranging a discussion on some problems of hospital management, to be held at 90, Buckingham Palace Road, London, S W 1, on Tuesday, Feb 14, at 5 30 P M Dr Andrew Topping will be the first speaker and Dr. Thomas Orr will take the chair

Imperial Social Hygiene

The ninth Imperial Social Hygiene Congress will be held in London at B M A House, Tavistock Square, W.C 1, from July 10 to 14 The preliminary programme includes an inaugural address by the Rt Hon L S Amery, M P, the president, on progress in social hygiene, 1937–39 Others taking part in the meeting will include Sir Ronald Storrs, Lord Horder, and Sir Arthur MacNalty.

Society of Public Analysts

The next meeting of this society will be held jointly with the food group of the Society of Chemical Industry on Wednesday, Feb 1, at 8 P.M, in the rooms of the Chemical Society, Burlington House, Piccadilly, London, W 1. Prof J. C. Drummond, D Sc, Dr. R A. McCance, Prof H D. Kay, D Sc, and Prof. E C Dodds will speak on the analysis and differentiation of the composition of iron, phosphorus, and calcium compounds in respect of nutritional requirements.

Swiney Prize

The Swiney prize for 1939 has been awarded to Prof John Glaister, regius professor of forensic medicine in the University of Glasgow, and Prof J. C Brash, professor of anatomy in the University of Edinburgh, for their book on Medico-legal Aspects of the Ruxton Case The prize is offered every five years, for the best published work on medical or general jurisprudence alternately, and the award is made by a joint committee of the Royal Society of Arts and the Royal College of Physicians.

A Course at Jena

In conjunction with the institute of scientific microscopy and applied optics of Jena University, the firm of Carl Zeiss of Jena are organising from March 27 to April 1 a course of microscopy, microphotography, microcinematography, micromanipulation, and luminescence microscopy, and also in absolute colorimetry, interferometry and spectral analysis, with particular reference to medical and biological work A detailed programme may be had from Carl Zeiss (London) Ltd, Mortimer House, Mortimer Street, W 1

The Cancer Bill: a Deputation

In the course of consultations he is carrying on with bodies interested in the Government's Cancer Bill, Mr. Walter Elliot, the Minister of Health, conferred on Jan 19 with a deputation from the Royal College of Surgeons. The members were Mr Hugh Lett (president), Prof G. Grey Turner and Prof R E Kelly (vice-presidents), Sir Cuthbert Wallace, Prof. G E Gask, and Sir Charles Gordon-Watson, and they presented a memorandum drawing special attention to the necessity for early and accurate diagnosis of cancer, increased facilities for the training of radiotherapists, the establishment of a national cancer institute, and the appointment of an advisory committee on cancer. The Minister informed the deputation that he had already decided to appoint a special subcommittee of his medical advisory committee to advise him on the subject of cancer.

Nursing and National Service

The Central Emergency Committee for the Nursing Profession, recently appointed by the Minister of Health, is now established in an office at Romney House, Marsham Street, London, S W 1. Nurses who have already registered for emergency service with the College of Nursing will have their forms sent on to the committee

London Scientific Film Society

This society is now half way through its first season and has shown films ranging over many scientific subjects from biology to engineering Particulars and provisional programmes may be had from the secretary at 28, Hogarth Road, S.W 5

MEDICINE AND THE LAW

Swab-counting

Is the counting of the swabs used during a surgic operation the exclusive responsibility of the operatu surgeon? The existing uncertainty is likely to cleared up when the Court of Appeal gives judgme in the case of Mahon *v.* Osborne (in which the Medic Defence Union is concerned). At the Manchest assizes, before Mr. Justice Atkinson and a speci jury, Mrs Mahon succeeded in obtaining over £6 damages against Mr Osborne, resident surgeon the Park Hospital, Davyhulme, in respect of t death of her son The patient underwent an operati in the hospital for abdominal trouble Subsequent a second operation showed the presence of a sw left in the body. It was beyond dispute that th caused the patient's death The mother sued n only the surgeon but also the nurse who assisted the operating-theatre for damages for their alleg negligence. The jury found that the nurse was n negligent; she was therefore dismissed from t proceedings and was not concerned in the appe As for the surgeon, there was evidence that he h conducted 600 or 700 abdominal operations, that was most able, careful, and conscientious in his wor There was evidence too of the elaborate system counting swabs during operations at the hospita they were carefully checked before and after ea operation; this was the first accident of its kind the hospital where some 3000 abdominal operatio had been conducted since 1935. Nobody was al to say that the system was a bad one Counsel f Mr Osborne insisted that, if the operating surge has himself to make sure that every swab has bee removed, the only way is to search the entire abdome —a course which would prolong the operation an endanger the patient's life

Whatever the result of the appeal it is clear th the surgeon's position has been appreciated by th tribunal "What you are saying," remarked Lor Justice Scott to Mr. Osborne's counsel, "is that th total duty to a patient in an operation of this kin must necessarily—if the surgeon is to give the requisit attention to the operation—be divided between hi and the nursing staff, and the duty of ensuring tha every swab is removed rests primarily upon th nursing staff?" Counsel agreed "And this divisio of duty," continued the Lord Justice, "even if i leaves the occasional possibility of tragedy, is stil in the interests of the patient?" Counsel agreed again It was argued for Mr. Osborne that the real issue in the case was whether he made a reasonab search for swabs, and that there was no evidence upon which the jury could find that the surgeo did not make a reasonable search Lord Justice Goddard, however, was by no means satisfied tha the trial judge would be right in leaving to the jury the question whether the operating surgeon made a reasonable search If a competent and careful surgeon followed a recognised system, where was his failure of duty ? On behalf of Mrs Mahon it was simply said that it was the duty of the operating surgeon who inserts swabs to remove them , if a swab was afterwards found to have been overlooked, the fact was obvious evidence of negligence Lord Justice Scott made the comment that, on the cases cited to the court, this was an overstatement of the legal position Asked by Lord Justice Goddard if he contended that the subsequent discovery of a swab was conclusive evidence of the surgeon's negligence, Mrs Mahon's counsel answered " No , but it is prima facie evidence of negligence for him to answer " At an earlier stage Lord Justice Scott had said that the facts indicated an almost certain inference that an extra swab was put in with a swab to which a Spencer Wells clip was attached , the surgeon did not know of it , when he removed all the swabs to which clips were attached, he was quite unaware that a swab had been left behind, because, *though* he *might* have touched it, he did not feel it This " might have happened without any negligence on the surgeon's part " The onus of proving negligence, after all, lay upon the plaintiff

The Court of Appeal has reserved judgment The decision, when it is reached, will be of vital significance to both sides—to the surgeons who are entitled to know their liabilities before they attempt to practise their profession, and to the patients for whose health and life the surgeon must work with the greatest possible concentration during the shortest possible time

Medical Diary

Jan 30 to Feb 5

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1 Wimpole Street, W 1

WEDNESDAY

History of Medicine 5 P M , Dr J A Nixon Prisoners of War Released by Napoleon at the Request of Dr Jenner

Surgery Medicine, Anæsthetics 8 30 P.M , Mr J B Hunter, Dr H P Himsworth, and Dr J T Hunter Surgery in Diabetic Patients

FRIDAY

Otology 10 30 A M (cases at 9 30 A M) Mr W Mill and Mr W M Mollison Modern Surgery of the Labyrinth

Laryngology 5 P M (cases at 4 P.M) *Dr Bernard* Johnson, Mr T E Cawthorne, and Dr A P L Cogswell : Anæsthesia in Endoscopy

ASSOCIATION OF CLINICAL PATHOLOGISTS

SATURDAY —9 30 A M (National Hospital Queen Square London W C 1) Dr V D Allison Dr R M Fry Dr A G Signy Dr F Camps Dr Sinclair Miller and Dr L F H Whitby Diagnosis and Treatment of Streptococcal and Pneumococcal Infections Dr N Hamilton Fairley Methæmalbumin (Pseudo-Methæmoglobin)—its Synthesis and Clinical Significance Dr E R Elkan Xenopus Pregnancy Test Afternoon Dr J G Greenfield, Dr J N Cumings Dr Janet Vaughan, Dr Elkan and Dr Allison laboratory demonstrations

WEST LONDON MEDICO-CHIRURGICAL SOCIETY

FRIDAY —8 P M (West London Hospital), clinico pathological meeting

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS, Lincoln s Inn Fields W C 2

MONDAY —5 P M , Mr H T Simmons Relapse following Sympathectomy

WEDNESDAY —5 P M , Mr A L d'Abreu Congenital Cysts of the Lung and Pleura (Hunterian lectures)

INSTITUTE OF PSYCHO ANALYSIS 96, Gloucester Place, W 1

TUESDAY —8 30 P M , Dr Denis Carroll Choice of Cases

TAVISTOCK CLINIC Malet Place, W C 1

MONDAY —4 30 P M , Dr H V Dicks Compulsions and Obsessions

THURSDAY —4 30 P M , Dr T W Mitchell The Latency Period

BRITISH POSTGRADUATE MEDICAL SCHOOL Ducane Road, W 12

Daily 10 A M to 4 P.M , medical clinics surgical clinics and operations obstetrical and gynæcological clinics and operations

TUESDAY —4 30 P.M , Dr Izod Bennett Nephritis

WEDNESDAY —Noon clinical and pathological conference (medical) 3 P M clinical and pathological conference (surgical) 4 30 P M , Prof J Shaw Dunn Nephritis, and Renal Changes in Hypertension

THURSDAY —2 15 P.M Dr Duncan White radiological demonstration 3 30 P.M , Mr James Wyatt Obstetric Emergencies

FRIDAY —2 P M clinical and pathological conference (obstetrics and gynæcology) 2 30 P M , Mr R Watson Jones Fracture Dislocations and Other Injuries of the Joints

ST GEORGE S HOSPITAL, S W 1.

THURSDAY.—5 P M., Dr Anthony Feiling neurological demonstration

NATIONAL HOSPITAL, QUEEN SQUARE, W C 1

MONDAY —3 30 P M , Dr C Hinds Howell Poliomyelitis

TUESDAY —3 30 P M , Dr J Purdon Martin Neurosyphilis(I)

WEDNESDAY —3 30 P M Dr F M R Walshe clinical demonstration

THURSDAY —3 30 P.M , Mr T E Cawthorne Vertigo

FRIDAY —Dr Denny Brown Spinal Compression

Outpatient clinics daily at 2 P M

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W C 1

THURSDAY.—2 P.M , Dr Wilfred Pearson The Pneumonias and their Treatment 3 P M Mr Eric Lloyd Treatment of Paralysis due to Poliomyelitis

Outpatient clinics daily at 10 A.M and ward visits at 2 P M

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL, N W 1

WEDNESDAY —4 P M , Dr Saxby Willis Blood pressure

CENTRAL LONDON THROAT NOSE, AND EAR HOSPITAL Gray's Inn Road W C 1

FRIDAY —4 P.M , Mr C Gill Carey Chronic Otitis Media

ST JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE *Ranelagh Road S W 1*

FRIDAY —3 30 P M , Sir Leonard Hill The Physiological Action of Methods used in Physical Medicine in the Rheumatic Diseases

LONDON SCHOOL OF DERMATOLOGY 5, Lisle Street, W C 2

TUESDAY —5 P M., Dr J F M Wigley Tuberculosis Cutis

THURSDAY.—5 P.M , Dr R. T Brain · Electrotherapeutics (Chesterfield lectures)

FELLOWSHIP OF MEDICINE AND POSTGRADUATE MEDICAL ASSOCIATION, 1 Wimpole Street W 1

MONDAY to SUNDAY —ST JOHN S HOSPITAL, 5 Lisle Street W C 2 afternoon course in dermatology (Open to non members) —LONDON CHEST HOSPITAL, Victoria Park E 2, Sat and Sun course in heart and lung diseases

LEEDS GENERAL INFIRMARY

TUESDAY —3 30 P M —Dr J Burrow Some Problems in Medical Diagnosis

GLASGOW POST GRADUATE MEDICAL ASSOCIATION

WEDNESDAY —4 15 P M (Royal Samaritan Hospital for Women), Dr Donald McIntyre Uterine Tumours

Births, Marriages, and Deaths

BIRTHS

BYROM —On Jan 21 at Birchington the wife of Dr F B Byrom—a son

HYWORTH —On Jan 22 at Stanmore Middlesex the wife of Dr Harold A Hyworth—a son

CLARKE —On Jan 17 at Royal Avenue Chelsea the wife of Dr R F Clarke—a son

DEATHS

EYRE —On Jan [illegible], at Whitstable Kent Charles R B Eyre M R C S , aged [illegible]

FRASER —On Jan 23 William Aldridge Fraser M C M B St And of St Albans

HENDERSON —On Jan [illegible], at Falmouth, Alexander [illegible] Henderson M D Aberd , formerly of Highgate London in his [illegible]th year

HOULBROOK —On Jan 19 at Hathersage William Edward Houlbrook M R C S J P aged [illegible]

SINCLAIR —On Jan 23 Frederick Archibald Sinclair M B Edin of Jamaica in his [illegible]th year

WARRACK —On Jan 24 at Gravesend James Stratton Warrack T D., M D Aberd , D P H

WOOLLARD —On Jan [illegible] at University College London Herbert Henry Woollard M D Melb , F R S aged 49

N B —A fee of 7s 6d is charged for the insertion of Notices of Births, Marriages and Deaths

Appointments

Clemens, Kathleen, M B Sydney, assistant bacteriologist in the public health laboratory, King's College, Newcastle-on-Tyne

Coleman, Mark, M S Lond, F R C S, surgical registrar at the London Chest Hospital

Erskine-Young, J M, M D Lpool, D P H, assistant medical officer for Hove

Fromow, D L, M R C S, resident surgical officer at the Ingham Infirmary, South Shields

Gillanders, A D, M B Edin, resident medical officer at the City Isolation Hospital, Leicester

Hotson, John, M B Edin, medical officer at the Babies Hospital, Newcastle-on-Tyne

Jones, D J, M B Wales, D P H, district medical officer of health for Brecon

Lindahl, J W, M Chir Camb, F R C S, registrar in the ear, nose, and throat department of the London Chest Hospital

Oldfield, Josie M, M R C S, junior assistant maternity and child welfare medical officer for Greenwich

Raven, R W, F R C S, assistant surgeon to the Royal Cancer Hospital (Free), London

Semple, A B, M B Glasg, D P H, assistant medical officer of health and assistant school medical officer for Blackburn

Young, G Campbell, M R C S, D P M, deputy medical superintendent at Bracebridge Heath Hospital, Lincoln

Zieve, I E, M A Cape Town, F R C S, resident medical officer at East Ham Memorial Hospital

General Post Office —The following appointments are announced —

Parks, J W, M B Camb, D C H, male assistant medical officer at headquarters medical branch,

May, Olive S, M R C S, assistant woman medical officer, and

Chrystall, Dorothy M, M B Aberd, assistant woman medical officer

Examining Surgeons under the Factories Act, 1937 · Dr J L **Rentoul** (Bridge-of-Weir District, Renfrew); Dr D T **Kemp** (Mauchline District, Ayr), Dr R D **Summers** (Bethnal Green District, London)

Vacancies

For further information refer to the advertisement columns

Aberdeen Royal Infirmary —Res anæsthetist, £150

Barnsley, Beckett Hosp and Dispensary —H P, £150.

Bermondsey Borough —Asst M O, £600

Birmingham, Erdington House —Asst res M O, £300

Birmingham New Centre Hosp —Asst to radiological dept, £400

Blackburn Royal Infirmary —Res H S, £175

Bristol, Barrow Hosp for Nervous and Mental Diseases —Res H P, at rate of £200

Cambridge, Addenbrooke's Hosp —H S to special depts. at rate of £130

Central London Ophthalmic Hosp, Judd Street, W C 1 —Hon asst physician

Central London Throat, Nose, and Ear Hosp, Gray's Inn Road, W C 1 —Hon assts in out-patient dept

Central Middlesex County Hosp, Acton Lane, Willesden, N W 10 Physician (Grade II), £650

Derby County —Deputy county M O H, £840

Derbyshire Royal Infirmary —H S for gynæcological dept, £150.

Dreadnought Hosp, Greenwich, S E 10 —Receiving-room officer, £150 Also hon dermatologist

Durham County Council —Asst school M O, £500

Durham County Hosp —H S, at rate of £150

Ealing, King Edward Memorial Hospital —Cas O and H S, at rate of £150

East Ham Memorial Hosp, Shrewsbury Road, E 7 —H P, at rate of £150

Elizabeth Garrett Anderson Hosp, Euston Road, N W 1 —Hon asst to ear, nose, and throat dept

Enfield Urban District Council —Consultative obstetrician, 2½ guineas per session

Essex County Council and Corporation of Chingford —Asst county M O and M O H, £400

Gloucester Royal Infirmary —Asst to radiological dept, £500

Hampshire County Council, &c —Asst county M O, &c, £800

Hosp for Sick Children, Great Ormond Street —Res med asst and clin pathologist, £125

Hounslow Hosp, Middlesex —Anæsthetist, £1 1s per session

Huddersfield, St Luke's Hosp —Res M O, £230

Hull Royal Infirmary —Second cas O, at rate of £150

Ilford, King George Hosp —Hon anæsthetist

Inverness, Royal Northern Infirmary —Two H.P 's, each £100

Kent Education Committee —Temp asst school M O, £11 a week

Lancaster, Royal Infirmary —Cas O and orthopædic H S, at rate of £130 Jun H S, at rate of £130 Also locum to H S, 1 guinea per day

Lancaster County Mental Hosp —Asst M O, £550

Leamington Spa, Warneford General Hosp —Res cas O and H S, at rate of £150

Leyton Borough —Deputy M O H and deputy school M O, £750

Liverpool Hosp for Consumption and Diseases of the Chest, Mount Pleasant —Hon physician.

London Chest Hosp, Victoria Park, E 2 —H P, at rate of £100

London County Council —Asst. M O 's Class I, each £350 Also asst M O 's Class II, each £250

Maidstone, West Kent General Hosp —H S, £175

Manchester Ancoats Hosp —Radiological officer, £400

Manchester Royal Children's Hosp, Pendlebury —Res surg O, at rate of £150

Mitcham, Cumberland House Hosp —Res asst M O, £350

National Hosp, Queen Square, W C 1 —H S, £100

Paris, Hertford British Hosp —Res M O, £150.

Portsmouth City —Res M O at Infectious Diseases Hospital and asst M O H, £500

Portsmouth Royal Hosp —Cas O, at rate of £130

Princess Elizabeth of York Hosp for Children, Shadwell, E 1—Hon radiologist for X ray and electro-therapeutic dept

Queen's Hosp for Children, Hackney Road, E 2.—H S, an cas O, each at rate of £100

Radium Institute, Riding House Street, W 1 —Res M O., a rate of £250

Richmond Borough, Surrey —Asst M O H, £500

Rochdale Infirmary and Dispensary —H P, £150

Royal Dental Hosp of London School of Dental Surgery, 3 *Leicester Square, W C* 2 —Lecturer on pharmacology an materia medica

Royal Free Hosp, Gray's Inn Road, W C 1 —Asst M O t V D dept, £300

Royal Naval Medical Service —M O 's

Royal Northern Hosp, Holloway, N 7 —H P, at rate of £70

St Bartholomew's Hosp, E C 1 —Helen Cave Memorial Scholarship, £200

St George's Hosp, S W 1 —Res asst physician, £250. Surgeon Also asst surgeon

St. John's Hosp Lewisham, S E 13 —Res cas O, at rat of £100

St Mary's Hosp, W 2 —Res anæsthetist, at rate of £125.

Saint Mary's Hosp for Women and Children, Plaistow, E 13—Res surg O and res H P, at rates of £155 and £1 respectively

Salisbury General Infirmary, Wilts —Two H S 's, each at rate o £125

Sheffield, Jessop Hosp. for Women —Res anæsthetist, at rat of £100

South London Hosp for Women, Clapham Common, S W 4—H S, at rate of £100 Also clin asst

Southampton Children's Hosp and Dispensary for Women—Res M O, at rate of £150

Walsall General Hosp —Cas H S, at rate of £150

Ware Park Sanatorium —Asst M O, £300

*West End Hosp for Nervous Diseases, Gloucester Gate, N W.*1—Two res H P 's, each at rate of £125

West Ham County Borough, Education Department —Sen schoo dental officer, £600

West London Hosp, Hammersmith Road, W 6 —Res surg reg and tutor, £225

West London Hosp Medical School, W 6 —Lecturer in forensic medicine

West Riding of Yorkshire County Council, Public Health Laboratory —Asst bacteriologist, £500

Wolverhampton Royal Hosp —Res anæsthetist, and H S fo fracture and orthopædic dept, at rates of £200 and £10 respectively

York County Hosp —H.P, £150

The Chief Inspector of Factories announces vacancies fo Examining Factory Surgeons at Felton (Northumberland) Crawley (Sussex), Redruth (Cornwall), Ramsey (Hunts) Burgess Hill (Sussex), Wilmslow (Chester), Cullen (Banff) Bankfoot (Perth), and Fortrose (Ross and Cromarty)

Medical Referee under the Workmen's Compensation Act, 192 for the Bourne, Oakham, and Stamford County Cou Districts (Circuit No 20) Applications should b addressed to the Private Secretary, Home Office, Whitehall London, S W 1, before Feb 10th

SENSORY CHANGES IN DYSTROPHIA MYOTONICA

O. Maas has examined the disturbances of sensibility in 28 patients aged from thirteen to fifty-five suffering from dystrophia myotonica (*Brain*, 1938, 61, 449) Of these, 20 showed an acuity of the vibration sensation less than normal, the impairment being greatest at the wrist and less at the knee and ankle. There was no constant relationship between the severity of myotonia and muscular wasting on the one hand and the presence or degree of impairment of vibration sensation on the other It appeared therefore that about two-thirds of the cases showed signs of impaired vibration sensation but none of them presented any abnormality of cutaneous sensibility (tactile or painful). Routine examination of a large number of other cases of dystrophia myotonica revealed other sensory abnormalities such as hypæsthesia, hypalgesia, or hypotherm anæsthesia Whether these changes are due to peripheral or cerebral nervous lesions cannot at present be determined *Maas concludes that the frequency of signs of sensory change in dystrophia myotonica suggests that the disease is not solely the result of an affection of the muscles*

NOTES, COMMENTS, AND ABSTRACTS

ACUTE EPIDEMIC DISEASES AMONG ESKIMOS IN ANGMAGSSALIK

By Arne Høygaard, M D

(From the Institute of Physiology, Oslo University)

It is reported from many isolated settlements hat when newcomers arrive the local inhabitants atch a cold Abs (1930) has called attention to he fact that, when people from one mining settle nent in Spitzbergen visit people at another station n the spring, epidemics of catarrhal infections levelop This happens *before* the first ship has rrived after the winter isolation It is also well nown that outbreaks of "influenza" are often een among Indian and Eskimo tribes and are as a ule very serious

This article records experience gained at Angmagssalik in East Greenland (lat 65½° N) by the scientific xpedition planned and equipped by Oslo University nainly to investigate the nutrition and metabolism of the Angmagssalik Eskimo

DISEASES AT ANGMAGSSALIK

About 800 Eskimos live in Angmagssalik, and they are, as far as we know, still of unmixed Eskimo blood The people living near the trading post have more and more forsaken their primitive diet, but the main population still lives in small communities on the coast by hunting seals and fishing The Danish physician Poulsen (1909) wintered in Angmagssalik 1899–1900 He did not see any case of pneumonia, but there were some cases of bronchitis Since the colonisation of Angmagssalik in 1895 there have always been outbreaks of colds when the annual ship arrived, and at intervals of 5–10 years there have been epidemics of "influenza" in connexion with the ship's annual visit in July, August, or September Bertelsen (1935) reported that 40 per cent of the deaths in the colony happened in August and September Statistics based on observations made by the governor and the minister from 1911 to 1930 show that 30 per cent of all deaths in this period were caused by "inflammation in the chest and epidemics" (Mikkelsen 1934) Deaths from 'tuberculosis and pneumonia" were calculated as only 6 5 per cent of all deaths

In the spring *before* the annual ship arrives infectious diarrhœa is common, attacking both children and adults but without any serious course Before the ship arrives, when people from isolated settlements meet in the spring, colds are common but not so widespread and of such a long duration as the annual epidemics of colds after the ship's arrival In August–November, 1925, an outbreak of poliomyelitis swept the coast, and twenty seven of the Eskimos died Impetigo contagiosa and abscesses on the trunk (especially the shoulders) often occur as epidemics

The outbreak of the serious epidemic of "influenza" started in November, 1935 more than two months after the ship had left Angmagssalik It spread rapidly through the district along the travelling routes, but did not reach communities cut off from communication with other places where people were ill The peak came in January, 1936, and from then until the summer of 1936 there were sporadic cases of pneumonia in different places Nearly 10 per cent of the population died.

DISCUSSION

The absence of hygiene among Eskimos makes it likely that everybody in Angmagssalik is infected when the ship arrives They live at that time for weeks together at the trading post and in nearby hunting grounds The question therefore arises why the epidemic did not break out until two months after the ship had left (the incubation period of the illness being not more than a week) I have shown (Høygaard 1938) that tuberculosis at the trading post is very badly influenced by the "hunger-time" which starts in mid winter Captain Ejnar Mikkelsen, the Danish explorer who wintered in Angmagssalik 1937–38, said in a lecture at the Royal *Anthropological Institute in London on Oct 25, 1938,* that he considered that hardships and lack of food in the autumn reduced the general state of health of the Eskimos, and that this was the reason why the "influenza" began after a latent interval (from the coming of the ship) I think that this explanation is a little unsatisfactory As a matter of fact, the epidemic of 1935 started at a time when food conditions were rather *good, and in some communities* there was a full store of provisions The famine in the winter 1935–36 was, I am sure, mainly secondary, and the "influenza" primary

From European experience we know that people can be quite healthy with pathogenic micro organisms in the throat or the nose, and that such micro-organisms increase in virulence by passage In my opinion the outbreak in Angmagssalik must be explained in this way Perhaps the virus came from the crew of the visiting ship By passage it grew virulent, until in November the great epidemic started This is sufficient to explain the latent period It is all the more probable because Wells and Heinbecker (1932) observed that the bacterial flora of the throats of Eskimos from Thule closely resembled that of Europeans This observation was made before the annual arrival of the ship

Adolf Hoel, the Norwegian explorer, told me that it was the usual experience of Arctic expeditions under his leadership for the people to catch a cold on returning from journeys in the Arctic even of so short a duration of 3–4 months I experienced the same thing later As a rule it may be said that this infection after a short isolation is milder and shorter than infection after a whole year's isolation This is the common experience in Angmagssalik (personal communication from the minister Otto Rosing)

Another reason for the severity of the outbreak is, as stated by Captain Mikkelsen, that the Eskimos take very little care when ill. The young hunters do not stop working before they are absolutely unable to walk. This is especially so in the autumn when they are anticipating the middle of the winter when very often no catch can be made I once met an Eskimo in a kayak who felt ill and my examination showed a definite pneumonia with high fever and *infiltration in one lung He had to paddle his* kayak for hours before he could reach his home and by that time he would be both wet and cold On the other hand, it was impossible to keep convalescents in their houses Before they had recovered from their pneumonia they could be seen fishing on the ice for hours with very miserable footwear or starting for a hunting trip in their kayaks These actions may lead to complications, such as empyema, which was very common. We certainly can see here one of the reasons why many of the deaths were of young hunters.

I had the impression that the temperature of Eskimos with croupous pneumonia was not so high as is usual in Europeans. The illness started less violently and was seldom accompanied by severe rigors. I saw neither herpes labialis nor the rusty sputum which is so common in European pneumonia. In some cases there were traces of fresh blood in the sputum, and in one case I saw a real hæmoptysis, with blood running out from nose and mouth Tuberculosis was excluded, the Pirquet reaction being negative on three occasions. The Eskimos in Angmagssalik seem to have the same low resistance against influenza as have all primitive peoples. On the other hand they seem to have a high resistance against sore-throat and tonsillar infections. I never saw tonsillitis, sore-throat, peritonsillitis, or hypertrophic tonsils in any of the Eskimos. The Europeans, however, often get sore-throat when the ship arrives The epidemic of poliomyelitis among the Eskimos in 1925 affected children less than adults. Measles, scarlet fever, whooping-cough, German measles, mumps, smallpox, chickenpox, and diphtheria do not seem to have been recorded in Angmagssalik, and—*mirabile dictu*—I did not see a single case of venereal disease. The most striking example of the difference in immunity between Eskimos and Europeans is *spekkfinger*, a characteristic form of whitlows (Mathiesen et al. 1935), which European seal-hunters very often get but the Eskimos of Greenland never. Acne vulgaris, so common among Europeans, was never seen at Angmagssalik

H. and I. Jones (1928) claim that Eskimos are naturally immune against diphtheria; but Boas (1885) described an outbreak very like diphtheria among the central Eskimos, and Wells and Heinbecker (1932) showed that 50 per cent of some Eskimos had a positive Schick reaction and they found in the throats of Eskimos organisms very like diphtheria bacilli From the west coast of Greenland Bertelsen (1935) reports several epidemic diseases, including gonorrhœa, typhoid, paratyphoid, paradysentery, erysipelas, whooping-cough, poliomyelitis, and epidemic jaundice But the Eskimos of the west coast are to a great extent a mixed race and have exchanged their native diet for imported foreign foods, such as cereals and sugar. Their connexion with white men is much older (250 years) and more intimate than at Angmagssalik Not very much is known about the correlation between race, diet, and infections, but in my opinion further studies in this matter would be very interesting. Epidemiologists who want to carry out such research on carnivorous unmixed races must do it now. In a few years nature's gigantic experiment with men on a pure animal diet will be spoilt by civilisation.

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LYMPHOGRANULOMA VENEREUM

THE accumulation of material for the stud of lymphogranuloma venereum (lymphogranulom inguinale, poradenitis venerea, lymphopathia venerea, or climatic bubo) proceeds apace Pardo-Castell Ferrer, Ibarra, and Tiant review 285 cases an conclude that, allowance being made for wron diagnoses in the past, there has been an extr ordinary increase in this disease in Cuba in the pa few years (*Vida Nueva*, 1938, 42, 465). Of the 28 cases 141 were in Europeans, 143 in negroes, an 1 in an Asiatic. The youngest patient was a boy thirteen and the oldest a man of seventy-thre Struck by the overwhelming incidence in mal (250 men to 35 women), they thought it possible th women might act as carriers; so they performe Frei's test as a routine on all women admitted f syphilitic and other skin diseases to the Calix García Hospital in Havana. In not one case was positive. But they quote Di Gregorio and his co leagues as having found 10–43 per cent. of positi Frei's tests in prostitutes without symptoms of th active disease. They also say that Tarafa has prove in 3 cases that a woman with the genitorect syndrome can have sexual relations with several me without infecting them. Of 10,310 patients admitte for syphilis or skin diseases, 2·39 per cent. ha lymphogranuloma venereum, 21·33 per cent. syphili 4·73 per cent. chancroid, and 20·75 per cent. gonorrhœ Three types of anorectal lesion were found—simpl stricture, stricture with inflammation of the rectum and proliferating rectal granulomatosis—and th three were sometimes mixed. A note of warning i added that the mistake should not be made thinking that all rectal stenosis and all rectovagin ulceration are lymphogranulomatous. Syphilis, tube culosis, trauma, cancer, and chronic inflammatio can produce rectal stenosis with or without fistula What can be stated dogmatically is that stenos low down in the rectum with infiltration of the rect wall is always lymphogranulomatous and can b proved to be such by Frei's test

Pardo-Castelló and his colleagues are not at a optimistic about treatment. They tried antimon Solganal B, Frei's antigen, intravenous injections sodium salicylate, and radiotherapy. None of the remedies gave consistent results. In a few case antimony, pushed till it caused articular pain appeared to give the best results, but in some case it was a complete failure. Injections of sodiu salicylate were of little value Frei's antigen, give either intradermally or intravenously, was by n means a specific remedy. Radiotherapy was a excellent coadjuvant, especially in prolonged adenit As controls, Tiant and Ibarra treated some of the patients solely with absolute rest in bed and sympt matically. They found improvement just as rapid and the length of the illness the same, as in patient receiving special medication Sulphanilamide an similar chemotherapeutic agents do not appear t have been tried. F. O. MacCallum and G. M. Findla have shown that sulphanilamide and a glucos derivative of 4:4′-diaminodiphenylsulphone can protect mice to some degree against active strains o the virus of lymphogranuloma inguinale (*Lance* 1938, 2, 130). For the genitorectal syndrome th only sure treatment, according to the Cuban author is surgery. If the disease is well established and fistulæ are present, the rectum must be extirpated after colostomy. When there are no ulcers or fistul and the stricture is simple, life can be prolonged and the patient made more comfortable by repeated and progressive dilatation with rectal bougies

TUBERCULOSIS IN NEWFOUNDLAND

IN the annual report of the Grenfell Societ Dr. C. S. Curtis, medical superintendent of th hospital at St. Anthony. expresses concern at th prevalence of tuberculosis in Newfoundland. Whil economic conditions are steadily improving th number of cases of phthisis seems to be increasing The mortality-rate from tuberculosis is now 2 per 1000, the same as it was in the United States thirty years ago Control is extremely difficult in this scattered population with no proper travel facilities, and a large number of people with active and open esions are at large and a source of danger to their families and friends More hospital beds are urgently needed both for early treatment and the isolation of chronic cases Dr Curtis would like authority to compel infectious patients too poor or too ignorant to observe the rules of hygiene, to enter an institution

BOURGEOIS BABIES

THOSE non-members who read the new edition of the little book written for the Chelsea Babies Club by its medical officers (Recipes for Food and Conduct London Chelsea Babies Club, 35, Danvers Street, Chelsea 1938 Pp 84 2s 6d) will envy the children and mothers of the professional classes in Chelsea who can enjoy advice and help of a type hitherto reserved for the working-class at welfare centres The book consists of sixteen short chapters on prenatal care, breast-feeding, weaning diet, exercise, clothing, and general management Simply written, so that directions can be followed by those unused to medical terms, it yet contains the essentials of modern pædiatrics The directions for prenatal care are practical and unalarming, the rules for breast-feeding are excellent, keeping the balance between the need for regularity and the avoidance of depressing monotony in the mother's life Simple directions are given for calculating the amount of breast-milk required by the infant and methods of test-weighing are given in detail Weaning, balanced diets, vitamins, patent foods, and protective inoculation are sensibly reviewed and the essential differences between the various commercial milks sold and the dangers of raw milk are made clear The modern views on sound tooth formation are embodied in the warning against excess of cereals in the diet There s an excellent chapter on exercise in infancy, with a sympathetic plea for babies too much confined to play-pens or strapped into perambulators with little possibility of either physical or mental exercise The section on sun-bathing contains a salutary warning against over enthusiastic exposure, especially at the seaside The book throughout is balanced in outlook and the apt quotations from the works of the sixteenth-century French physician, Saint-Martin, add to its attractiveness Many medical readers will find nstruction in it

CATALOGUING IN SPECIAL LIBRARIES

Mr J L Thornton, the librarian of St Bartholomew's Hospital medical college, has made a concise survey of the methods of cataloguing adopted in the "special" libraries in this country (London Grafton and Co 1938 Pp 208 10s 6d) He uses the term special to indicate all other than public and county libraries, and he covers the large field comprehensively though without pretence to completeness Although the book is intended to deal mainly with one particular branch of librarianship—cataloguing—Mr Thornton manages to include a mass of useful information on other aspects of the subject in many of the sections devoted to individual libraries Beginning with the university and college libraries he goes on to discuss in turn medical and scientific libraries (such as those of St Bart 's, the School of Hygiene, and the Royal College of Surgeons), those attached to scientific and learned institutions and societies, government libraries, business, commercial, and technical libraries; and finally polytechnic and other libraries catering for the more general types of student. At present the methods of cataloguing are widely divergent and the achievement of a satisfactory degree of coöperation and uniformity amongst such a varied collection of libraries will be no easy task Yet this is what Mr Thornton is aiming at, and if his book succeeds even partially in making order out of chaos it will have performed a useful service The book may not interest every doctor, but those who are constantly using scientific libraries, and more particularly the special librarians themselves, will find it rich meat

THORACIC SURGICAL IMPLEMENTS

IN a lecture given to the Institute of British Surgical Technicians on Jan 20, Mr T HOLMES SELLORS said that his object was to try to help bridge the gap between the user and the maker of surgical implements Thoracic surgery was an extremely specialised branch requiring special tools *Rib resection* involved freeing of the bone from its attached soft tissues without injuring the pleura or lung All rib rugines, raspatories, or strippers were based on the Farabœuf periosteal elevator The short curved stripper generally sufficed, but modifications were necessary in dealing with a rib hidden deep beneath muscle or under the scapula, and the angle at which the rib lay in relation to the operator determined the shape of other forms Another tool, which was needed to reach the deep surface of the rib, was the Doyen raspatory, invented fifty years ago and never since improved, except by cranking the handle or changing the size of the hook. The rib, after being freed, had to be cut Rib shears fell into two main types guillotine and forceps The guillotine type with a hook or a complete ring made a clean true cut, but could not be used round corners In these circumstances, or when the rib was unduly tough, the compound double-action Swedish patterns were invaluable There were also punch and gouge forceps for clearing sharp or projecting stumps of bone

After resection of the rib the opening had to be enlarged with a *rib spreader*, generally based on the *Tuffier or the De Quervain types, to allow of* intrathoracic manipulations, for which the instruments had to be longer and lighter than usual and safe from any chance of springing or slipping off The tying of *ligatures* constituted a problem, and for this reason most forceps were curved to let the surgeon see the tips There were two ways of controlling the thin-walled vessels at the hilum (1) isolating each vessel tediously and ligaturing it, and (2) grasping vessels and bronchi together in a special snare or tourniquet, which was left in place until stitches could be slipped round the vessels and lung stump

Lighting the operation field was sometimes a problem The big shadowless or multiple unit lights were valueless Lighted retractors or a small lamp were almost essential With reference to thoracoscopes, bronchoscopes, and all other electrical implements Mr Sellors emphasised the possibility of a breakdown due to faulty cable or to a lamp blowing out There was one motto "Duplicate everything" Electrical connexions should be more or less *standardised*

The *operating table* as used in general surgery was too high for chest work The patient lay on his side for most of the thoracic procedures and it was difficult for the surgeon to stand over the operation field without using a platform A lower base was now being fitted on many tables for this reason, with fittings to keep the patient on his side

One of the latest problems to be solved was that of *continuous suction* needed in the treatment of chronic empyema Hand pumps and water siphonage were not wholly efficient Electric suction was the only feasible method, and a small low consumption, silent, and reliable motor had been produced He had had one "ticking over" continuously for six months

Mr Sellors ended with a plea for the invention of a substitute for rubber tubing—something with thin walls and an effective lumen flexible and not hard enough to erode the tissues He also put forward the "hopeless request" for an instrument that would tie a half hitch knot round the tip of a curved forceps at a good distance from the surgeon's fingers

AMERICAN MEDICAL PIONEERS

UNDER a somewhat vague title (Doctors on Horseback William Heinemann. 1938 Pp. 336 16s.) Mr. James Thomas Flexner has written seven short and entertaining biographies of outstanding figures in American medicine during the eighteenth and nineteenth centuries. Here is the story of John Morgan, striving tirelessly, if tactlessly, to improve the standard of medical education, and of his lifelong and bitter rivalry with the younger Shippen; of the enigmatical Benjamin Rush, oddly compounded of benevolence and self-will, whose influence in American medicine was paramount for half a century; and of the heroic Ephraim McDowell who dared the first oophorectomy with a mob waiting outside to hang him if he failed—dramatic surgery indeed. Next comes the tale of William Beaumont who dressed the stomach wound of a young man expecting him to die. When the patient survived with a gastric fistula, Beaumont was given a heaven-sent chance, of which he fully availed himself, to study gastric secretion and digestion. Daniel Drake, the "medical statesman" of Cincinnati, comes next, and the last essay tells of Crawford W. Long and William T. G. Morton who share the credit for the introduction of anæsthesia. Mr. Flexner writes racily and in no blindly partisan spirit Being fully alive to the shortcomings of his various heroes, his records bear that stamp of fidelity and truth so essential to good biography.

CRIMINAL, INVESTIGATION

THE scientific investigation of crime has two principal aspects, a study of the circumstances which is primarily the duty of the police, and the subsequent examination by experts of materials relating to the case—of bodies, remains, stains, dirt, fibres, documents, and writing, bullets, powders, tools, and coins—examinations that demand high degrees of special training. Sifting of such evidence by the coroner, the judge, the magistrate, the barrister, and the doctor requires a comprehensive though superficial knowledge of the entire field of criminal investigation, and it is this kind of knowledge that Soderman and O'Connell try to convey in their new book [1] They succeed in covering the wide field in a remarkably thorough manner, free from redundance of any kind, and with a comforting assumption of the reader's intelligence. Their short treatise is designed for the detective, and, coming as it does from the combined sources of Stockholm and New York, it provides a refreshing stream of new observations, new methods, and new techniques It should be added without delay to the shelves of every doctor-barrister and forensic pathologist.

THE DRUG TRAFFIC

THE report of the Central Opium Board on its work during 1938, and the statistics of narcotics for 1937, presented to the council of the League of Nations, are for the most part reassuring but in some respects disquieting. The board has now been in existence for ten years and is in a position to review the progress accomplished as well as to invite attention to "the weaknesses that practice has revealed in the Narcotics Conventions, and the chief dangers ahead"

Control of international traffic has been tightened and the escape into illicit traffic of manufactured drugs, it is claimed, has all but ceased. On the other hand "for raw materials, especially opium, the same cannot be said." Huge discrepancies have often been discovered between the amounts reported as having been shipped to various countries and the amounts received by them. This is doubtless attributable partly to the fact that not all the great opium-producing countries are parties to the opium conventions but also to the authorised continuance of opium-smoking in the Far East. Opium for this purpose is sold by government at a high profit, smuggling is accordingly promoted, and "opium sold by a government has precisely the same effect on the consumer as opium sold by a smuggler." Attention has been directed to the case of Manchukuo, a great opium-producing country and generally believed to be manufacturing large quantities of narcotic drugs. It, however, does not furnish any statistics to the board. Italy again has not since the second quarter of 1937 sent in any statistics whatever, although in 1936 1335 kg. was manufactured there.

The report says: "there can be no doubt that tens of thousands of drug addicts are still to be found in the world" and that "it is unlikely that more than a very small proportion of these drugs come from licensed premises, unless the statistics furnished to the Board are entirely incorrect." The board dismisses that suggestion and arrives at the conclusion that the large quantities of drugs found in the illicit traffic must mostly be produced in clandestine factories. There is no doubt that "immense quantities of opium are produced yearly for which there is no legitimate demand," and the conclusion is irresistible that "until the quantity of opium produced throughout the world is reduced to the amount needed for legitimate purposes the illicit traffic will continue."

The board reflecting on its work during the past decade cannot close without some misgivings about the future It says: "the illicit traffic is a menace to the whole world, and can only be suppressed by universal coöperation. It would be most unfortunate if the great advance that has already been made towards the suppression of this traffic should be endangered by political disagreements The Board thinks, therefore, that it would be well for the contracting parties to consider carefully what steps should be taken to keep, or win back, for the Board the full support of countries which are estranged from the League of Nations."

YEARBOOK OF LEARNED SOCIETIES

IN its fifty-fifth year the "Official Year-Book of the Scientific and Learned Societies of Great Britain and Ireland" (London: Charles Griffin and Co. Pp. 171. 10s.) continues to be an invaluable source of information, more particularly for those who have to do with the production of scientific journals It contains details of the officers, objects, membership regulations, time and place of meetings, publications, and so on of the main societies in which original work is done, as well as particulars of such institutions as the Ministry of Health and the Medical Research Council.

THE DOCTOR'S VIEWS —Many of the general public believe that the General Medical Council may strike a doctor off its register for practising unorthodox methods. It is useful therefore to have *Picture Post* pointing out, in its issue of Jan. 14 (p 64), that the council is expressly forbidden to do so by the Medical Act. A man who has had a proper medical training is assumed to be competent of judging for himself what form of treatment is best for his patients. There is much other good sense in the article.

THE LANCET Index and Title-page to Vol II, 1938, which was completed with the issue of Dec. 31, is now in preparation. A copy will be sent gratis to subscribers on receipt of a post card addressed to the Manager of THE LANCET, 7, Adam Street, Adelphi, W.C.2 Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now.

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[1] Modern Criminal Investigation By H. Söderman, D.Sc., head of the Institute of Police Science, University of Stockholm; and J. J. O'Connell, deputy chief inspector. New York City Police Department. London: G Bell and Sons. 1938. Pp. 461. 12s. 6d.

ADDRESSES AND ORIGINAL ARTICLES

MAKERS OF JOHN HUNTER*

BY W SAMPSON HANDLEY, M S Lond., F R C S
CONSULTING SURGEON TO THE MIDDLESEX HOSPITAL LONDON,
COUNCILLOR OF THE ROYAL COLLEGE OF SURGEONS

(WITH ILLUSTRATIVE PLATE)

IT is a tribute to the broad mindedness of my countrymen that John Hunter, the presiding genius of this College of Surgeons of England, was not an Englishman Nothing, unless it be the Crown itself, could better illustrate the unity of this island of Great Britain or the beneficent exchanges between its northern and southern parts which have followed the Act of Union of 1707, exchanges which gave the Hunters to England and Lister for a time and at a later period to Scotland It would be a mistake, however, to regard John Hunter as a missionary from the north *in partibus infidelium* His medical education was due entirely to London, and he received it primarily from his elder brother

William Hunter also, though indebted to Scotland for his literary education, for his medical apprenticeship to Cullen—a physician of the old systematic school—and for a year's attendance at Edinburgh University, found his inspiration in his "darling London" in the house of Dr James Douglas, the leading anatomist of his time and an admirer and disciple of William Harvey

It is my main object in this address to trace the intellectual descent of Hunter from Harvey, for I believe it has been overlooked You shall judge of the evidence, and I will present it with a minimum of comment I wish specially to speak of John's teacher, his elder brother William, once a member of the staff of the Middlesex Hospital, which I now am privileged to serve, and to reassess his contributions to knowledge I can add nothing fresh to the details of William Hunter's life as described by Simmons and others, and confess my indebtedness to them

Others who come into my story of the makers of Hunter are the brothers James and John Douglas, Cheselden of St Thomas's and the Westminster Hospitals, pupil of James Douglas and teacher of John Hunter, and Mrs Hunter, his charming wife

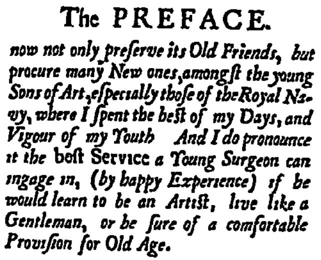
SURGERY IN THE EARLY EIGHTEENTH CENTURY

At the opening of the eighteenth century the barbers and surgeons were still united in one guild (note the precedence of the barbers), which was dissolved in 1745, its monopoly of subjects for dissection being thus broken, to the advantage of William Hunter's school, founded a year later

The surgeon of the period following the Act of Union of 1707 was often a Scot, and he can be studied in the frank pages of "Roderick Random" (published 1748) by Smollett, who, like his hero, was a naval surgeon This book had an instant success, and it may very likely have influenced or perhaps even determined John Hunter's choice of a profession It was published in the year he came to London, and its rough candour would be likely to appeal to him

Smollett may have learnt his surgery in the pages of Wiseman or of James Handley, also a naval surgeon, who in 1720 published the third edition of his "Colloquia Chyrurgica," a small book containing in the author's belief all the anatomy and surgery that a surgeon need know (fig 1) The book, though illuminated by many flashes of common sense and by the wisdom of experience, is founded on the old humoral doctrines and affords an excellent idea of the state of surgery at that time It is to be noted that the popular textbooks of the time were English, though Maister Peter Lowe of Glasgow had written an earlier textbook The Edinburgh medical school was not founded until 1720, and Monro, its founder, was born and educated in London London, however, at this time held a position much inferior to Paris, Padua, and Leyden

Voltaire, in his "Age of Louis XIV," after ranking surgery as the most useful of all the arts, claims that in the time of the *grand monarque* "people came to Paris from the ends of Europe for any cure or operation that required exceptional skill" Not only good surgeons but also surgical instruments were at that time, he says, almost the monopoly of Paris He goes on "I have heard from the mouth of the great Cheselden, the greatest surgeon in London, that it was he who first began to make in London, in 1715, the instruments of his art" The forces which ultimately revolutionised surgery were already at work, but in the early eighteenth century they had produced little effect



The PREFACE.

now not only preſerve its Old Friends, but procure many New ones, amongſt the young Sons of Art, eſpecially thoſe of the Royal Navy, where I ſpent the beſt of my Days, and Vigour of my Youth And I do pronounce it the beſt Service *a Young Surgeon can ingage in, (by happy Experience) if he would learn to be an Artiſt, live like a Gentleman, or be ſure of a comfortable Proviſion for Old Age.*

FIG 1—Part of the preface of James Handley's Colloquia Chyrurgica, 1720

WILLIAM HARVEY

The discovery of America by Cabot and Columbus at the end of the fifteenth century discredited ancient geography and awakened in other branches of science a distrust of ancient lore which led to first hand observation and experiment At Padua, when Harvey (1578–1657) went to that university about the year 1600, Galileo was reforming Ptolemy's astronomy Harvey was the first Englishman to use the new highway to medical knowledge The critical date when medical tradition in England began to be replaced by observation and experiment is 1628, the year in which Harvey published his work on the circulation, "De Motu Cordis et Sanguinis." Harvey says, "I have not endeavoured from causes and probable principles to demonstrate my propositions but as of higher authority, to establish them by appeals to sense and experiment" In these simple words he announced a revolution of thought and made St. Bartholomew's Hospital the English cradle of modern physiology and morbid anatomy Harvey planned a book on 'Medical Anatomy' based upon "the many dissections I have made of persons diseased, worn out by serious and strange affections, how and in what way the internal organs were changed from their natural form and appearance' It was reserved for Morgagni in 1761 and Matthew Baillie, nephew of the Hunters, in 1793 to carry out this plan. *Ars longa, vita brevis.*

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* The Hunterian Oration of 1939 delivered on Feb 14

I shall try to show how, through James Douglas, his brother John Douglas, and William Hunter, John Hunter learnt the methods of Harvey, which he applied to surgery with such far-reaching results. According to Buckle, the Scottish mind is deductive rather than inductive, and this was certainly true in the eighteenth century. Delighting in a complete and logical structure of belief, the deductive mind prefers to start with a set of general principles, instead of working up to them from particular instances. It is therefore something of an anomaly that the Harveian method was first applied to surgery on a large scale by a Scotsman. John Hunter appreciated the fallacy of the deductive method, but his inherited need for a generalised and complete system of belief remained as strong as ever. With intense determination and unwearied industry he endeavoured to establish such a system by the laborious method of experiment and observation, without the aid of the microscope and with only rudimentary chemistry and physics. He did not arrive at his methods by the light of his own genius. When he arrived in London at the age of 20 his mind was practically a clean slate, and his delight in nature was a vague boyish wonder. He said later, "When I was a boy, I wanted to know all about the clouds and the grasses, and why the leaves changed colour in the autumn; I watched the ants, bees, birds, tadpoles, and caddis-worms; I pestered people with questions about what nobody knew or cared anything about" William Hunter showed him how to work, planting his feet firmly upon the shoulders of his predecessors

JAMES DOUGLAS

James Douglas, the teacher and exemplar of William Hunter, came, like the Hunters, from the class of Scottish minor lairds which corresponds to the English yeoman class of which Harvey sprang. His early education is veiled in obscurity, but according to Mr. George Peachey, after obtaining an M D. at Rheims he settled in London as a private teacher of anatomy in 1706. In that year from "the Blew Boar over against the end of Fetter Lane" he announced a course of human and comparative anatomy In 1707 he published the first extant work on comparative anatomy, a science of which he was the founder. The book was called "Myographiæ Comparatæ Specimen, or A Comparative Description of the Muscles in a Man and in a Quadruped."

He says, "I took all the descriptions from ocular inspection, in dissection, using twelve subjects to make sure ... I chose a dog for comparison because young students of anatomy may readily procure so common a subject." He considered anatomy in twenty-five lectures illustrated by his own dissections, and then passed to comparative anatomy, showing the glands, lymphatics, eye, ear, and stomach of various animals, and parts of the oyster, skate, lobster, and whiting The course concluded with "the history of the animal economy, mastication, deglutition, digestion, chylification, sanguification, circulation in the fœtus and adult, nutrition, secretions, generation, respiration, and muscular motion."

In 1706, on the proposal of Dr. Hans Sloane, and perhaps because of his interest in botany, he was elected F.R S He wrote papers on the autumn crocus, the culture of saffron in England, cinchona, and the coffee tree Though not a member of the staff, he appears to have had the freedom of St. Bartholomew's Hospital, for he studied the anatomy of disease and was permitted to perform necropsies there It is recorded that, long before Laennec and his stethoscope, he heard in the hospital an aortic murmur. In 1715 he published a general bibliography of anatomy "from Hippocrates to Harvey" and was appointed Arris lecturer on the muscles at Barber-Surgeons' Hall The book shows *fair-mindedness, scholarship, and complete lack of* egotism and self-glorification It is of special interest as disclosing the source of his inspiration not only in its title but also in its references to Harvey, whom he calls *senex divinus* The whole literary world, he says, deplores the loss of the manuscript treatise of Harvey which disappeared in the confusions of the civil war. His dislike of acrid controversy appears in his remark that "though reproved and provoked by many, Harvey forbore to reply except to Riolan, and to him gave criticism rather than rebuke."

James Douglas realised the need of surgery for anatomical knowledge and had in his house a complete collection of preparations showing every possible surgical method of reaching the interior of the bladder, and the advantages and inconveniences of each method so far as these depend on the structure of the parts He practised midwifery, became physician to the Queen, and is recognised in Pope's "Dunciad" as the obstetrician of his time. He also published a catalogue of the editions of Horace which he had collected, but anatomy continued to be his main interest

In 1730 he published his "*Description of the* Peritoneum," for he is Douglas of Douglas's pouch and semilunar fold. The book was dedicated to the magnificent Dr Richard Mead His youngest brother, George, dedicated to James Douglas "with the utmost sincerity, gratitude, and respect" a translation of Winslow's "Anatomy." The dedication declares: "To you I owe all that I know, not only of the Science, but of the *Stile of Anatomy, and there* is not one good line in this Translation which is not the better for what you have *taught me, or procured* me opportunities of learning" Every contemporary reference *to* James Douglas appears *to* be equally cordial and friendly Cheselden calls him "that *most accurate* and indefatigable anatomist," and Warburton, the biographer of Pope, calls him "a physician of great learning and no less taste"

It would seem that James Douglas fulfilled Burke's *exacting* description of a good man as having good nature for the basis of his character, and a desire to love, to serve, and to oblige everybody in everything as the very essence of his soul It is perhaps characteristic of the man that he left behind no *portrait of himself* He was buried at St. Andrew's, Holborn, the parish in which he lived, but even his grave has disappeared It lay somewhere beneath the present Holborn viaduct.

JOHN DOUGLAS

John Douglas, doubtless helped by James, who was always ready to serve others, applied his brother's *anatomical lessons to surgery and* was the first surgeon to practise suprapubic lithotomy. He was led *to the operation* by instances within his knowledge of recovery after penetration of the bladder by the horn of a bull, by gunshot, and by a sword. Like James, John wished to acknowledge the merits of others, and at the end of his book "Lithotomia Douglassiana" (1723) he gave in full the early work of Rousset,† the French surgeon, who had suggested but not performed the suprapubic operation in the

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† Francois Rousset, De Partu Cæsario, 1581.

THE GREAT WINDMILL STREET SCHOOL OF ANATOMY

The Great Windmill Street School, comprising a spacious house, a lecture theatre, dissection rooms, and a great museum, was founded by William Hunter in 1770 after the rejection by the Government of his generous offer to erect and endow at his own expense a national School of Anatomy. It was the earliest complete anatomical school in London, and the first to adopt the Paris system by which the student himself dissects the whole body under supervision of the teacher. William Hunter had a passion for teaching and says of himself: "to acquire knowledge and to communicate it to others has been the pleasure, the business, and the ambition of my life." He preferred to teach by word of mouth, rather than by his pen, and continued to do so for thirty-six years. His failure to print his views on the lymphatic system embroiled him during his life in red-hot controversy with Monro the second.

The smallness of his literary output has tended to dwarf William's stature in comparison with his brother's, but for style and clarity John cannot compare with him. One classic work on the gravid uterus, two perfectly finished introductory lectures to his anatomy course, and a few scattered clinical papers are his only literary remains, if we except his strangely named "Medical Commentaries," a passionately controversial work wrung from him by what he regarded as an attack upon his honour by Monro the second. We must regret the nerve energy expended on this volume. Harvey was wiser and left his detractors alone.

William Hunter can be judged partly by the impression he produced upon his contemporaries, and Matthew Baillie said he was perhaps the best anatomical teacher that ever lived. But he should be estimated mainly by the history of his school and by its contributions to anatomy. An Edinburgh visitor spoke of it as follows: "The school in Windmill Street under the joint guidance of Dr. Wilson and Mr. C. Bell was remarkable in Messrs. Hewson and Cruickshank's time for its discoveries in minute anatomy, and it has not degenerated under Mr. Wilson's superintendence. The students will nowhere find such careful dissections of the nerves as those prepared for Mr. Bell's lecture. . . . The absorbents are also demonstrated and beautifully injected in the recent body, a mode far superior to that of exhibiting them upon dried preparations To the best of my knowledge demonstrations of the absorbents are only made at Windmill Street" The author then refers to Mr. Bell's knowledge of military surgery acquired in the hospitals at Waterloo, and to the splendid series of anatomical preparations, mostly injected by Mr. Wilson himself and only equalled by Prof. Monro's in Edinburgh.

WILLIAM HUNTER AND THE LYMPHATIC SYSTEM

William Hunter was the first to enunciate correct views based upon rational grounds of the structure and functions of the lymphatic system. In so doing he controverted the view of Harvey that the lacteals contained milk, not chyle—i.e, fluid derived from the digestion of the food. William Hunter, who was inclined to think Harvey overrated, denied the absorption of fluid from the bowel by the portal venous system, and in this he was wrong. In other respects his views on the lymphatic system constituted a great advance. It was William Hunter who taught, trained, and paid Hewson (fig. 4) and Cruickshank. Each of these two men published after his death master works on lymphatic anatomy. But for William Hunter their works would not have been written, and it is their writings more than his own that proclaim William Hunter as the founder of lymphatic anatomy in this country. The elder Hunter's interest in the lymphatic system, his knowledge of the history of the subject, and the scrupulous desire to give credit to pioneers, which he inherited from the Douglas brothers, are shown in his introductory lecture to his course of anatomy, a masterpiece of clear and concise exposition He says: "After the discovery and knowledge of the circulation of the blood, the next question would naturally have been about the passage and route of the nutritious part of the food, or chyle, from the bowels to the blood-vessels." He then relates the discovery of the lacteals by Aselli in 1627 and of the thoracic duct by Pecquet in 1651. Rudbeck and Bartholin detected the lymphatics which carry clear lymph and not milky chyle in 1653.

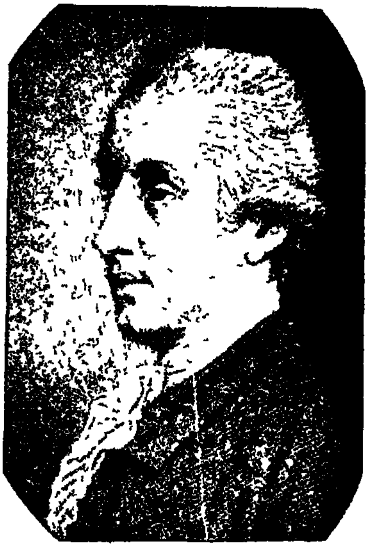

FIG 4—William Hewson

William Hunter goes on to say: "But none of the Anatomists of those times could make out the origin of the lymphatics, and none of the Physiologists could give a satisfactory account of their use." He then proceeds to put forward unequivocally his own claims as having been the first to form a correct general notion of the anatomy and functions of the lymphatic system. In his own words, "I think I have proved that the lymphatic vessels are the absorbing vessels all over the body; that they are the same as the lacteals; and that these altogether, with the thoracic duct, constitute one great and general system, dispersed through the whole body for absorption; that this system only does absorb, and not the veins; that it serves to take up and convey, whatever is to make, or to be mixed with the blood, from the skin, from the intestinal canal, and from all the internal cavities or surfaces whatsoever. This discovery gains credit daily . . . and if we mistake not, in a proper time, it will be allowed to be the greatest discovery, both in physiology and pathology, that Anatomy has suggested, since the discovery of the circulation" Anatomists had believed that the lymphatic system was wanting in birds and fishes, and William Hunter, not satisfied on this point, kept it constantly in view "Accordingly, my brother Mr. John Hunter, whom I bred to practical anatomy, and who worked for me, and attended my dissecting room, and read some lectures for me many years, found some lymphatics, first in birds, and then in a crocodile." From John Hunter's experiments he inferred erroneously that the veins do not absorb fluids.

"Next, Mr Hewson, whom I first bred to Anatomy and took into my house to work for me discovered and fully demonstrated the lymphatics and lacteals, both in birds and fishes" William Hunter inferred that the lymphatic *system, if universal through the* animal kingdom, must be important He goes on "And lastly Mr Cruickshank, whom I likewise bred to Anatomy, at my desire, has traced the ramifications of that system in almost every part of the body, and from his dissections figures have been made, which, with what I have had before, will enable us to publish (we hope in a little time) a full account of the whole system, illustrated by accurate engravings"

W Hunter was dead before these words were printed, and the projected joint work never appeared Cruickshank fulfilled the plan in his "Anatomy of the Absorbing Vessels" (2nd edition, 1790) In his preface he says, "In consequence of Dr Hunter's death this business has now fallen on me I should have had no small share in it had he lived, for I had made almost all the preparations from which the drawings were made" Cruickshank made many interesting observations on the lymphatic vessels As an instance, he says (p 197) that the intercostal lymphatics, of which two accompany each intercostal artery, can be injected easily with mercury from the thoracic duct The mercury forces the valves and penetrates through the substance of the glands which lie between the heads of the ribs He continues, "on one occasion I also injected their posterior branches, which then run backwards to the skin and muscles of the back, with the posterior branches of the intercostal arteries, in this subject they perforated the body of one of the vertebræ of the back, through whose substance I afterwards saw them ramifying A demonstration that they also went to, or more properly came from, the bones"

In this short paragraph Cruickshank exposes the probable route by which spinal deposits reach the upper dorsal spine in breast carcinoma I have shown that the *glands* of the anterior mediastinum may be infected as early as the axillary glands, thence the infection probably reaches the spine along the lymphatic vessels of the upper intercostal spaces It would be difficult to find a better instance of the surgical value of lymphatic anatomy, for, given precise knowledge upon the subject, the *prevention* and treatment of these late *spinal deposits could* be hopefully approached by radiologists and radiosurgeons Spinal metastasis is increasing in frequency owing to the elimination of fatal local recurrence by improved operative methods Pathologists are too busy with their vast subject to supply the help surgeons and radiologists need in this matter Some young surgeon or radiologist with a research scholarship should devote two or three years to the solution of the problem and become his own pathologist for his own special needs in the light of Cruickshank's observation

Hewson's work on lymphatic anatomy, published in 1774, has been reproduced *by the Sydenham* Society

Sir Charles Bell, who succeeded to the Windmill Street School and transferred some of its specimens to the new Middlesex Hospital School and later to Edinburgh, was more interested in *the nervous* system, and Cruickshank seems to have had no successor It may be doubted whether in any anatomical school in Great Britain freshly injected specimens of the lymphatics are to be seen at the present time, though I recall the lymphatic work of the late Prof Jamieson of Leeds and the associated surgical work of the late J P Dobson and of Mr L R Braithwaite At Charing Cross Hospital the late Mr H S Clogg did notable work in the surgical lymphatic anatomy of the tongue Mr R H *Burne, our former physiological curator, has described* a new system of lymphatic vessels in the angler fish A revival of lymphatic anatomy and physiology is very desirable in the interests of surgery, and more especially in the interests of cancer research In cancer research at the present time two theories of origin, the virus theory and the chemical (tar) theory, face each other in apparent contradiction, each supported by substantial evidence and each ignoring the undoubted production of cancer by physical agents, such as light Attempts to reconcile them involve very difficult assumptions, such as the almost universal presence of a cancer virus or the formation in the body of cancerogenic hydrocarbons The observation made by myself (The Genesis of Cancer, 1931, H K Lewis) that in areas of tissue about to become cancerous the lymphatic vessels are obliterated, has been ignored by pathologists, but it is the most likely clue to the unravelling of the tangle If the whole character of the vegetation of a field can be radically altered by the blocking of the pipes which drain it, it is hardly surprising if local chronic lymph stasis in the body may ultimately breed a race of cancer cells The virus or the tar are in my view cancerogenic agents, because they set up in the lymphatic vessels an obliterative lymphangitis Research scholarships specifically restricted to the lymphatic system are urgently needed, and this College would doubtless be willing to administer them under the able superintendence of Prof Beattie in our new Bernhard Baron laboratories or at the Buckston Browne farm The work of William Hunter has been left half finished

GENEROSITY OF THE HUNTERS

The Hunters were proud and generous, like many of their much maligned countrymen In Clift's time fifty persons fed daily at John Hunter's expense Though *both the brothers* made *large* incomes, neither died rich, and John died possessed of little but his museum I find, thanks to researches made in the Record Office on my behalf by Miss E O'Farrell, that in July, 1779, he asked relief of the Court of Chancery in respect of a bond into which he had entered to oblige a friend, a young sprig of Scotch nobility, the Hon Lockhart Gordon, stating in his petition that "without some such relief and assistance your Orator (petitioner) and his family must be inevitably ruined" (see Appendix)

MRS JOHN HUNTER

In July, 1771, John Hunter married Anne Home, then aged 29, daughter of an army surgeon in Burgoyne's Regiment of Horse She seems to have been a lady of wonderful charm and social gifts Her portrait speaks for her (fig 5) Rogers (The Modern Scottish Minstrel, 1855) says of her "During *the lifetime of* her distinguished husband, Mrs Hunter was in the habit of receiving at her table and sharing in the conversation of the chief literary persons of her time Her evening conversazioni were frequented by many of the more learned, as well as fashionable persons in the metropolis She was the life of her social parties, sustaining the happiness of the hour by her elegant conversation and encouraging the diffident by her approbation Amiable in disposition she was possessed of a beautiful countenance and a handsome person She wrote verses with facility, but she sought no distinction as a poet, preferring to be regarded as a good housewife and an agreeable member of society "

Among the lions of Mrs Hunter's salon were the composer Haydn and Mrs. Montagu, founder of the Blue Stocking Club, evidently a mixed club, for it took its name from the colour of the hose of Benjamin Stillingfleet, son of a bishop, traveller, naturalist, and oracle of the club Mrs. Hunter supplied Haydn with the words of his "Englische Original-Canzonetten," a book of twelve songs, of which the best known is "My mother bids me bind my hair," a touching ditty still familiar. She also wrote the libretto of Haydn's "Creation." Haydn, who speaks of John as "the greatest and most celebrated surgeon in London" (1792), appears to have intensely enjoyed his London visit His last appearance in Leicester Square was, however, not too pleasant John Hunter had frequently pressed him to consent to the removal of a nasal polypus which troubled him, but Haydn postponed the appointment from week to week Learning of Haydn's imminent departure from London, Hunter invited him to come to Leicester Square for urgent but unspecified reasons "After the first compliments several stout fellows entered, seized me and would have put me on a chair I shrieked, shouted blue murder and let out lustily with my feet until I freed myself and made Herr Hunter, who stood ready with his instruments, understand that I absolutely refused operation." It may be added that only death parted Haydn from his polypus. It may also be presumed that the reactions of Mrs Hunter's social evenings upon her husband's practice were usually more favourable We are told that people were known to have consulted Mr. Hunter professionally in the hope of being invited to Mrs Hunter's assemblies

FIG 5—Mrs. John Hunter.[‡]

It was doubtless partly for her and her parties and the special coach and coachman he provided for her that her proud and generous husband needed the "damned guineas." Surgeons' wives who envy her should remember that she had a museum in each of her two houses Her contribution to surgery was John Hunter's happiness. Let us, in recalling her memory as of eighteenth century pot-pourri, also more vividly recall what we owe each of us to his own wife. There should be a special petition in the litany for the women whose domestic routine is daily at the mercy of the acute appendix and the perforated gastric ulcer.

Appendix

Abstract of Chancery Proceedings, 1758–1800, C12/1251/68, July 22, 1779: John Hunter, of Jermyn Street, Middlesex, surgeon, *versus* Alexander Gray and John Ogilvie.

"That there being some intimacy of Friendship subsisting between him (the plaintiff) and the Honourable Lockhart Gordon late of Upper Grosvenor Street in the said County of Middlesex Captain in his Majesty's thirty fifth Regiment of Foot the said Lockhart Gordon informed your orator that having occasion for a Sum of Money he meant to raise the same by way of granting an annuity for his own Life as being the more convenient way for a person in his Situation but that he was apprehensive some further security might be required for securing the payment of such Annuity than his own and desired your orator if necessary to join with him in any reasonable Security which might be required "

"The said Gordon intimated that the Annuity would be about £170 which he would easily keep down out of his pay and *that in case he could not procure money in that* way it would involve him in some difficulties or distress"

The plaintiff "being desirous under those representations to assist the said Lockhart Gordon as far as he could consistent with his own safety," he agreed to be security.

Shortly afterwards Lockhart Gordon entered into a treaty with Sir Charles Raymond, of Valentines, Essex, Bart, whereby Sir Charles was to pay him £1020 "as a consideration for such Annuity on having the same secured by him and your orator" Therefore the said Gordon and the plaintiff were bound to Sir Charles in £2040 for the payment of an annuity of £170 to Sir Charles during Lockhart Gordon's life. The date of this bond was Nov. 24, 1775

For the better security of this annuity the said Gordon and the plaintiff delivered to Sir Charles a "warrant of *Attorney" of the same date to enable him "to enter up* judgment against them upon the said Bonds for the penalty therein contained."

About May, 1778, the payment of the annuity was in arrears "and your orator not having called upon the said Lockhart Gordon for any Indemnity against the same" he applied to Gordon to indemnify him, which he promised to do.

The said Gordon by his deed poll of May 29, 1778, assigned to the plaintiff "*all sum or sums of* money which was or were then due or which should at any time thereafter become due and payable to him the said Lockhart Gordon for pay or otherwise as a Captain in his Majesty's said thirty-fifth Regiment of Foot or as enjoying any other Rank by Commission which he might thereafter acquire in the Army," unless the arrears of the annuity should be paid within 10 days after the date thereof.

Afterwards Sir Charles Raymond sold the annuity to Sir *Richard Chase and* gave him the bond and warrant for securing the same.

The annuity being *again in arrears, the plaintiff had* to pay Sir Richard Chase £240. Afterwards the plaintiff received £45 from Alexander Gray and John Ogilvie of Conduit Street, agents of Lockhart Gordon.

But lately the said Lockhart Gordon, combining with Sir Charles Raymond, Sir Richard Chase, Alexander Gray, and John Ogilvie "to injure and oppress" the plaintiff "*and to defeat him* of the benefit of his said indemnity," had "privately and without the privity of your orator sold his said Commission with some unfair view or design of throwing the whole weight of the future payments of the said annuity upon your orator."

The money, £1700, received for the commission was paid to Alexander Gray and John Ogilvie. The plaintiff had applied to them and "represented to them the great injury or hardship your orator would sustain in case he should be stripped of his said indemnity by the purchase money for the said commission" being paid to Lockhart *Gordon and asked them to have it "laid out in the* name of some proper person or persons in some of the publick funds government or other securities," as otherwise the plaintiff would be liable for the annuity and "without some such relief and assistance your orator and his family must be inevitably ruined." The said Gray and John

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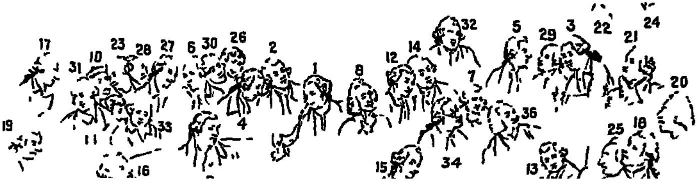
[‡] Figs 2 and 5 are from G C Peachey's A Memoir of William and John Hunter, 1924, and fig 3 is from G Mather's Two Great Scotsmen, 1893



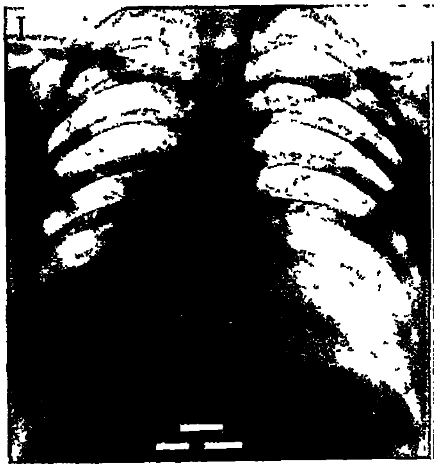
The Life School of the Royal Academy by J Zoffany

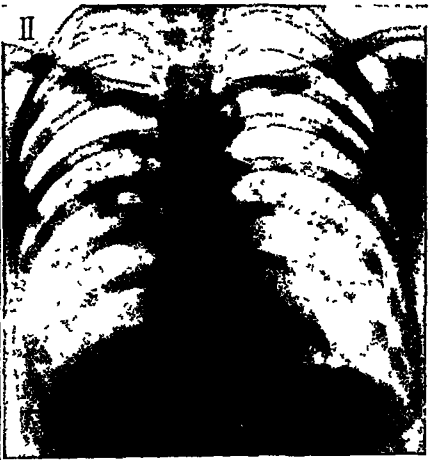
Reproduced from the painting at Windsor Castle by gracious permission of His Majesty the King

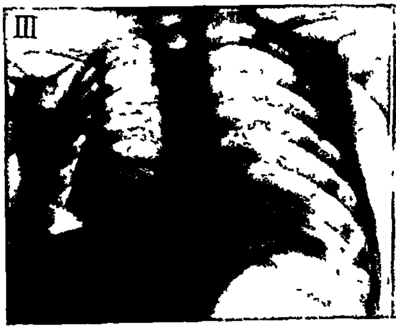
KEY

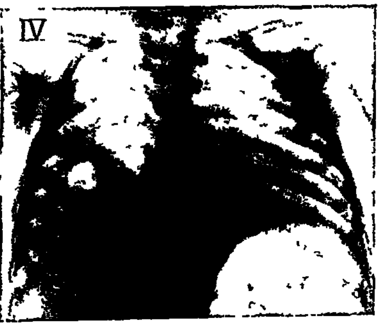
1 Sir Joshua Reynolds
2 Sir William Chambers
3 George Michael Moser
4 Francis Milner Newton
5 Edward Penny
6 Thomas Sandby
7 Samuel Wale
8 **William Hunter**
9 Francis Hayman
10 *Tan Chot Qua*
(a Chinese artist)
11 George Barret
12 *Francesco Bartolozzi*
13 Edward Burch
14 Agostino Carlini
15 Charles Catton
16 Mason Chamberlin
17 J Baptist Cipriani
18 Richard Cosway
19 John Gwynn
20 William Hoare
21 Nathaniel Hone
22 *Mrs Angelica Kauffmann*
23 Jeremiah Meyer
24 Mrs Mary Moser
25 Joseph Nollekens
26 John Richards
27 Paul Sandby
28 Dominick Serres
29 Peter Toms
30 William Tyler
31 Benjamin West
32 Richard Wilson
33 Joseph Wilton
34 Richard Yeo
35 Johan Zoffany
36 Francesco Zuccarelli

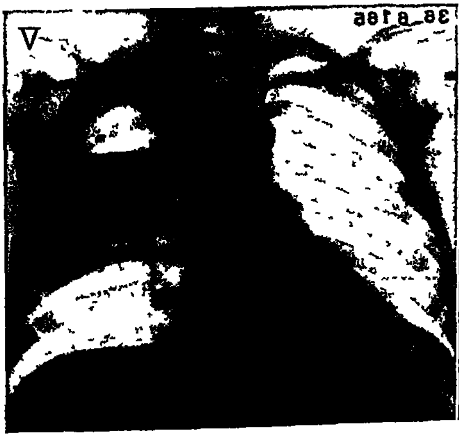
DRS. GARLAND AND BERRIDGE: SUPPURATIVE PNEUMONITIS AND LUNG ABSCESS

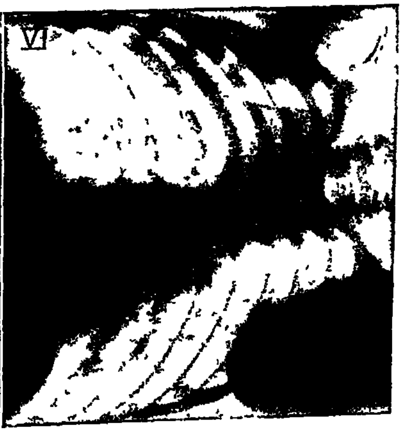




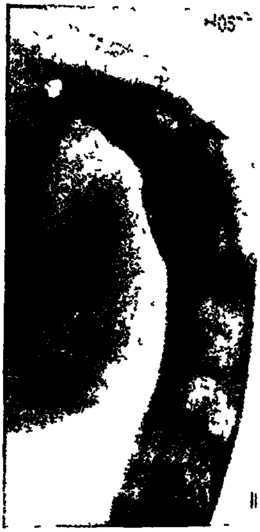


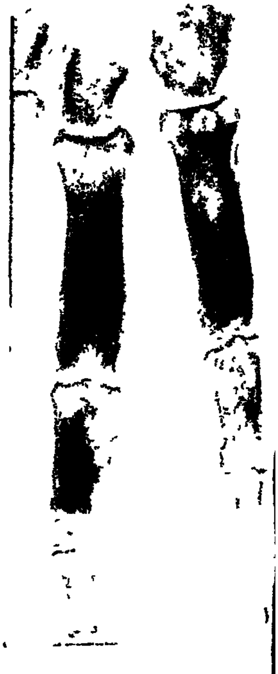






DRS. ROBSON & TODD
FIBROCYSTIC DISEASE
BONE





Ogilvie refused the plaintiff's request and pretended that he was not a security for the said Gordon, or else that he "received some valuable consideration" for it

Sir Richard Chase "as being sensible of your orator's distressed situation sometimes alledges that he is willing to permit the said annuity to be redeemed" and at other times will not give permission

(The 35th Regiment of Foot was the Royal Sussex Regiment Lockhart Gordon joined that regiment from half pay in 1776 and was still with it in 1779 This regiment went to America in 1775 and fought at Bunker Hill It took part in the capture of St Lucia in 1778 and returned to England in 1785)

SUPPURATIVE PNEUMONITIS AND LUNG ABSCESS

THE VALUE OF RADIOLOGY

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(WITH ILLUSTRATIONS ON PLATE)

CERTAIN cases with the clinical signs and symptoms of lung abscess show a diffuse shadow in the lung parenchyma when examined *radiologically* It has been found convenient to call such cases "suppurative pneumonitis" This first stage of pulmonary suppuration has two characteristic radiographic features—namely, homogeneous veiling of the involved region of the lung and increase in the lung markings The shadowing may involve a whole lobe or only a part of it If only a part is involved the shadowing is irregular and this is to some degree due to extension of the thickened bronchi beyond the limits of the veiling Suppurative pneumonitis never produces the true mottled shadowing seen in bronchopneumonia Bronchial markings are more exaggerated than vascular markings, but the increase in the latter indicates engorgement and stasis such as might be expected in any acute inflammation The increase in the bronchial markings is characteristically present throughout the course of the disease and is one of the last signs to disappear The veiling is not usually sufficiently dense to obscure the lung markings completely (fig I on plate)

If the shadowing persists the second stage may be reached in course of time, when a cavity with a fluid level is demonstrated in the lung parenchyma (fig II) This is the absolute criterion of lung abscess formation An intermediate stage may intervene when a circumscribed opacity is observed amidst the shadowing, an opacity which is presumably the locus of a lung abscess

The cavity of a typical acute lung abscess is surrounded by a uniform opacity of density just insufficient to obscure the lung markings completely More often than not the cavity is situated towards the upper limits of the veiling The vomica may be temporarily obscured by a superadded pneumonitis extending beyond the original limits of the disease Pleural involvement is an almost constant feature of any stage of the disease and it is shown by fluid, pleural thickening or adhesions This is to be expected in a lesion developing at the lung periphery

INCIDENCE AND ÆTIOLOGY

Only sixteen cases were seen at a large general hospital in two years, so the condition may be regarded as rare when uncomplicated bronchopneumonia and pulmonary suppuration secondary to such diseases as neoplasm, bronchiectasis and pyæmia are excluded Suppurative pneumonitis may never progress to a later stage and in six of our cases a cavity was never demonstrated throughout the illness The main features of the sixteen cases are summarised in the table The healing time was assessed on clinical grounds but *was not considered complete until* there was radiological proof that the lung fields were clear The duration was of necessity prolonged by this rigid criterion

The series included eleven males and five females Assuming that oral sepsis is more common in males, it might be argued that this preponderance corroborates *the view that dental sepsis is an important* ætiological factor (Stern 1936) Moreover, in ten cases the disease was confined to the right lung, and for anatomical reasons septic material finds access easier on that side Seven cases were associated directly or indirectly with inhalation anæsthesia Only two of the anæsthetics were for operations in the region of the mouth, one being a dental extraction and the other for a fractured mandible In eight cases the suppurative pneumonitis followed acute pneumonia and in the remaining case the origin was uncertain

There is much controversy as to the exact relation between acute pneumonia and pulmonary suppuration Definite cavities, unassociated with symptoms of lung abscess, have been observed on the radiograms of cases of resolving pneumococcal pneumonia (Kessel 1930) This type of cavitation was found to be due to ischæmic infarction following vascular thrombosis From this it appears that something more than mere tissue necrosis is required to produce an abscess in acute pneumonia, and the conception of an area of grey hepatisation breaking down into a true abscess is probably incorrect. Every case of pulmonary suppuration must pass through a preceding stage of inflammation This presuppurative stage, especially in cases of aspiration of septic material, has been termed "pneumonitis" Kerley (1936) has described the radiographic appearances of pneumonitis, which

LEGENDS TO ILLUSTRATIVE PLATE

DRS GARLAND AND BERRIDGE

I—Suppurative pneumonitis

II—Same case as fig I The condition has now progressed to the formation of an abscess cavity

III—Empyema cavity

IV—Same case as fig III Empyema cavity simulating abscess cavity

V—Large abscess cavity in right upper lobe Erect position

VI—Same case as fig V Fluid level alters its position with the patient lying on one side

VII—Right middle lobe abscess Cavity obscured by pleural effusion

VIII—Same case as fig VII Abscess cavity revealed by using a Potter Bucky grid

DRS ROBSON AND TODD

FIG III—Left femur

FIG V—Left hand

FIG VI—Right side of thorax showing affection of fourth and sixth ribs

Case	Sex	Age (years)	Ætiology	Type	Result	Duration (months)
1	M	17	Postanæsthetic	Abscess, sub-apical, L lower lobe	Recovered	4
2	M	63	Pneumonia	Abscess, sub-apical, R lower lobe	Recovered	7
3	F	43	Pneumonia	Abscess, sub-apical, L lower lobe	Recovered	9½
4	M	3	Pneumonia postanæsthetic (empyema)	Abscess, R upper lobe	Slight fibrosis Clinical recovery	1
5	F	25	Bronchopneumonia	Pneumonitis, R lobes	Recovered	5
6	M	25	Postanæsthetic (fractured mandible)	Abscess, sub-apical, R lower lobe	Clinical recovery Complete recovery not confirmed radiologically	2
7	F	15	Pneumonia	Abscess, apical, R lower lobe	Recovered	6
8	F	39	Pneumonia	Abscess, L lower lobe	Recovered	3
9	M	19	Pneumonia	Pneumonitis	Bronchiectasis No recovery after 18 months	—
10	F	9	Postanæsthetic	Pneumonitis, R lower lobe	Recovered	4½
11	M	7½	Pneumonia	Pneumonitis, sub-apical, R lower lobe	Recovered	2
12	M	49	*Uncertain*	Pneumonitis, R middle lobe	Bronchiectasis No recovery after 24 months	—
13	M	38	Postanæsthetic (teeth extraction)	Abscess, R middle lobe	Pleural thickening Recovered	6
14	M	3½	Pneumonia	Abscess, R upper lobe	Recovered	3
15	M	35	Postanæsthetic	Pneumonitis, R middle and lower lobes	Residual fibrosis Clinical recovery	6
16	M	11	Postanæsthetic	Abscess, L lung	Died	1

are very different from those of bronchopneumonia, and he has observed that this condition may clear up without proceeding to abscess formation. Suppurative pneumonitis is a stage further, when actual pus is present in the lung but not necessarily in the form of a localised abscess The true pathology and morbid histology of suppurative pneumonitis are not yet known, and confirmation is required from material obtained at autopsy or from lobectomy before the condition can be finally accepted as a pathological entity. We wish to emphasise that suppurative pneumonitis is quite distinct from the "simple pneumonitis" recently described by Morton Gill (1938).

DIFFERENTIAL DIAGNOSIS

The radiographic appearances of suppurative pneumonitis are not pathognomonic Pneumonic consolidation, especially in the early stages of resolution, and some forms of influenzal pneumonia can give rise to very similar appearances Furthermore, it is not possible to determine from the radiogram alone whether suppuration has occurred in an area of pneumonitis In cases of this kind, however, the clinical signs and symptoms leave no doubt that suppuration is present, and radiological examination is undertaken to determine the extent of the disease and to ascertain whether a definite abscess has formed Abscess cavities which were not visible on straight radiograms have been demonstrated by tomography, and the introduction of a simplified apparatus by Twining (1937) should lead to the more widespread use of this method Lipiodol introduced through the bronchoscope directly into the affected part of the lung has also shown cavities which were not apparent on ordinary radiograms (Pinchin and Morlock 1935)

It is the demonstration of a fluid level which usually first draws attention to an abscess cavity, yet from time to time difficulties are encountered in the interpretation of fluid levels in the lung fields The introduction of air into the pleural cavity following an operation on the ribs or the aspiration of a pleural effusion can give rise to an appearance radiologically indistinguishable from a lung abscess Figs III and IV show the development of such an appearance following rib resection for an empyema A lateral radiogram may show the true state of affairs but even there the resemblance may persist.

Although differential diagnosis from a tuberculous cavity is not usually difficult, the radiographic appearances are sometimes inconclusive Reliance must then be placed on clinical evidence and especially on the character of the sputum and its bacteriological content Similarly, confusion may arise when congenital cystic disease of the lung is complicated by pneumonia

In order to demonstrate a cavity in all dimensions three radiograms are required the anteroposterior or posteroanterior projection (fig V) a lateral view; and one taken in posteroanterior projection with the patient lying on his side in order to reveal the depth of the cavity (fig VI) A cavity obscured by pneumonitis or by effusion may sometimes be defined by using a Potter-Bucky diaphrag (figs VII and VIII) Occasionally even in the acu stage of lung abscess physical signs of a cavity a present, and in these circumstances invaluat assistance is afforded thereby In one of our ca confirmed radiologically, an abscess in the left low lobe was associated with cavernous breathing a post-tussic suction.

TREATMENT AND RESULTS

In every case conservative measures were adopted spontaneous healing being awaited and surg intervention avoided as far as possible In only case was there cause to regret the steadfast adherence to medical treatment A young adult with suppurativ pneumonitis was treated by bronchoscopic aspirati of the pus He developed bronchiectasis, no recov being recorded 18 months *after* the onset One case proved fatal, here operation had been regarded as contra indicated by the surgeons, for the patient was suffering from a series of complications following acute intussusception Operation was also withheld in a middle aged man in poor general health and this patient developed bronchiectasis In one case an incision into an area of suppurative pneumonitis revealed merely a lung oozing pus and no definite abscess cavity Eleven cases recovered completely, so that there was no cause to be dissatisfied with the immediate results of medical treatment It was perturbing, however, to find that two cases ultimately developed fibrosis, one presumably being of a permanent type

The question arises as to what part surgery might have played in shortening the course of the illness, in obviating sequelæ or in saving life Although the immediate results were good the duration of the illness was usually prolonged and in that way compared unfavourably with the results obtained in some surgical clinics Children who recover from lung abscess with medical treatment do so quickly and therefore with them the problem of operation is not so important In adults the position is less satisfactory Neuhoff and Touroff (1938), with their wide experience of abscess of the lung, now do not favour *deferring operation when the progress of a case is doubtful* The series of cases published by them shows what can be accomplished by early operation with specialised technique

Operation in the early stage of suppurative pneumonitis may reveal an abscess, but on the other hand it may reveal only a lung oozing pus—a condition that has been aptly compared with a bog in contrast to the pool of a frank lung abscess At this stage too, resolution may occur and it may not be possible to demonstrate an abscess cavity throughout the course of the disease Having decided to operate on such a case the surgeon may be confronted with the difficult task of performing lobectomy Complications, including extensive adhesions, may render lobectomy too dangerous to undertake (Chandler 1938), and in consequence the patient has to combat not only suppurative pneumonitis but also the effects of operation and a chest wound It appears that one is only on firm ground in advocating operation when there is radiological evidence of an abscess cavity Progressive enlargement of the vomica represents an absolute indication for operative treatment Surgical treatment should be discussed when serial radiograms show an abscess cavity persisting for a fortnight or more Operation becomes imperative when the patient's general state is deteriorating or when there is a danger that the condition is becoming chronic An empyema complicating any stage of the disease is, of course, always treated surgically

SUMMARY

1 Sixteen cases of suppurative pneumonitis are discussed, ten of which proceeded to lung abscess

2 The distinction between the two conditions rests largely on radiological grounds

3 It is maintained that by distinguishing the stage in the disease a basis is obtained upon which to found the operative indications

We wish to thank Dr Edward Miles medical superintendent of Oldchurch County Hospital, for permission to publish these cases, and Dr W Burton Wood for his criticism and advice

(*References at foot of next column*)

FIBROCYSTIC DISEASE OF BONE

WITH SKIN PIGMENTATION AND ENDOCRINE DYSFUNCTION

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(WITH ILLUSTRATIONS ON PLATE)

Since Mandl (1926) demonstrated a relationship between disturbance of the endocrine system and the diffuse fibrocystic disease of bone of von Recklinghausen much attention has been paid to the recognition of these cases and to the benefit to be derived from parathyroidectomy In 1929 Aub *summarised his* extensive work on calcium and phosphorus metabolism and studies of fibrocystic disease as a whole and of individual cases have since been published in this country particularly by Hunter (1930 and 1931–32) Diffuse cystic changes in the skeleton clearly present a complex problem and only a proportion of the cases are suitable for parathyroidectomy Wilder and Howell (1936) in a review of 135 proven cases give the following as the invariable features of this latter group

(1) The skeletal appearances are those of cystic osteitis fibrosa

(2) There must be indisputable abnormality of calcium metabolism demonstrated by a study of the blood or urine

(3) There must be tumorous enlargement of one or more parathyroids

Gutman and his colleagues (1936) suggest that evidence of disturbed calcium metabolism may not always accompany even true fibrocystic disease of the skeleton associated with parathyroid tumour These workers point out that a normal blood calcium figure may be found in such cases in the presence of renal failure, that from experimental evidence variations in calcium intake may possibly be of importance, and that the disease may be subject to spontaneous remissions There is no doubt that a condition of the skeleton radiographically very similar to that associated with a parathyroid tumour does occur in its absence This is referred to by Hunter (1931–32) as the "*multiple focal type of fibrocystic disease*" and also by Fairbank (1935)

Albright and others (1937) have described a syndrome characterised by osteitis fibrosa disseminata areas of pigmentation, and endocrine dysfunction with precocious puberty in females In none of their patients did a parathyroid tumour appear to be present, and the following case which came under our observation, conforms to their description

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(*Continued from previous column*)

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CASE-REPORT

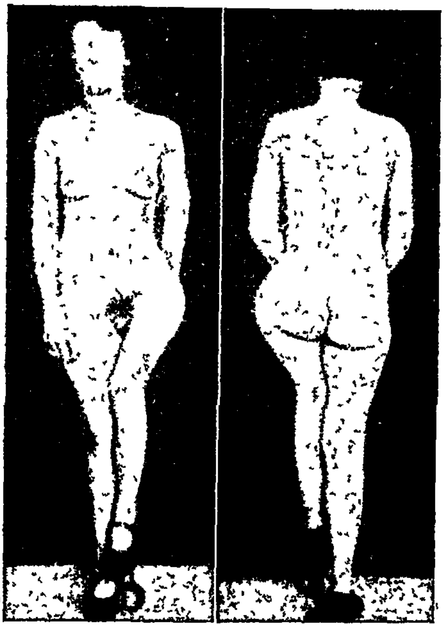

FIG. I—Front and back views of patient. The pigmented area has been outlined with a dotted line.

A woman aged 33, a brush-factory worker and former shop-assistant, was admitted to the neurological ward of the Middlesex Hospital in November, 1937, under the care of Dr. McAlpine. Her parents were unrelated and three sisters were free of cutaneous pigmentation and gave normal menstrual histories. As far as the patient was aware there had been nothing abnormal about her until the age of 4, when she was noticed to be growing unusually big for her years. At the age of 6 the breasts began to develop, pubic hair appeared and a year later menstruation set in. This was often excessive in the early years and on one occasion there was continuous loss for nearly six months. About this time (her sixth year) she was noticed to be limping with her left foot. Something abnormal was observed in the region of the left hip and she was admitted to the local hospital, where a radiogram was taken and an exploratory operation performed. The results of these investigations are not known. In 1911, at the age of 7, she fractured the left humerus, in 1914 the left femur, in 1916 the upper end of the left tibia and since 1916 she has sustained two further fractures of the left humerus and three of the left femur. The most recent fracture was of the left humerus in 1935, when she was treated at York County Hospital (fig II). Several determinations of blood-calcium and blood-phosphorus done at this time gave normal figures. (We are indebted to Mr. A H. C. Visick for this information.) She was referred to Dr. McAlpine on account of a complete right facial palsy which had appeared in August, 1935, following the extraction of a lower molar tooth under local anæsthesia and had persisted. A left facial palsy appeared suddenly on April 9, 1938, and the patient was readmitted for a short time in June, 1938. As far as was known the patient had always taken a normal full diet

On examination there was a complete right facial palsy, also a left facial palsy which was showing signs of recovery There was gross deformity of the left arm and forearm, left side of the pelvis and left leg (fig. I) In order to get about she had to wear a nine-inch iron on the left foot. There was a brownish pigmentation on the left side of the back and chest and under the left arm (fig. I). This was strictly unilateral and had been present since birth as far as the patient knew. The blood-pressure was 130/80 mm. No abnormality of the pelvic organs could be detected clinically (Mr. F. W. Roques)

INVESTIGATIONS

Wassermann reaction : negative.

Blood-count : normal in all respects

Blood chemistry :

Urea	24	mg	per 100 c.cm.
Non-protein nitrogen	27	mg	,,
Albumin	3·28	g	,,
Globulin	2 48	g	,,
Fibrinogen	0·45	g	,,
Calcium	10·1	mg	,,
Phosphorus	3 4	mg.	,,
Plasma phosphatase (normal range 3–11 units)	11·4	units	,,
Sodium	327	mg.	,,
Potassium	21	mg	,,
Chlorides	590	mg.	,,

The blood-calcium and blood-phosphorus were substantially the same on three separate occasions, includin one reading during menstruation.

Van Slyke's urea-clearance test : normal.

Urine : normal.

Aschheim-Zondek test : negative.

Calcium balance :

	Ca intake	P. intake	Ca output	P. outp
First observation (six days)	0·58 g.	2·77 g.	1·94 g.	3 4 g.
Second observation (three days)	0·25 g	1·39 g	0 83 g	1 84 g.

These figures indicate a slight but definite negative calcium balance (Dr. J. D. Robertson).

Reports on radiography of bones (Dr. T Crichlow) · "Fibrocystic disease in left humer and lower extremity (fig. III on plate) with o healed fracture in lower end of humerus a femur Left side of pelvis shows fibrocystic chang (fig. IV); the left hand (fig. V on plate) left foo the right fourth and sixth ribs (fig VI on plate) al show changes, also the right transverse process the third lumbar vertebra and the right side of t sacrum. Scoliosis in the lumbar vertebræ No cyst changes seen in the skull, the two translucent areas being probably pacchionian bodies" No abnormalities were detected in special views of the skull in the region of the facial canals There was no evidence of renal calculus. The pituitary fossa was normal. No peripheral arterial calcification was visible.

Exploration of neck : On Jan 20, 1938, Mr Gordon Taylor did an exploratory operation in the neck but no tumour was found in the region of the parathyroid glands nor elsewhere in the neck, nor as far as could be discovered was there a tumour in the substernal region. No further exploration was undertaken in view of the inconclusive biochemical findings.

The radiographic and biochemical investigations were repeated when the patient was readmitted in June, 1938, and the results were substantially the same. There appeared to have been no radiological

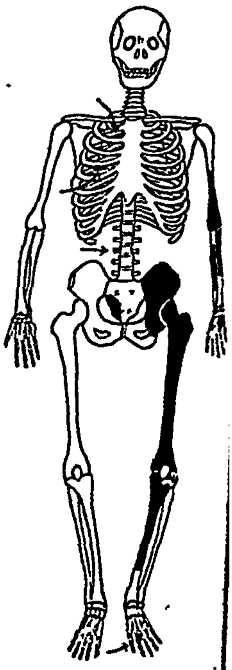

FIG. II—Distributio the bone lesions.

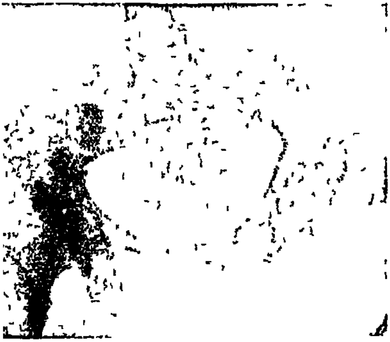

FIG IV—The pelvis

ance of the condition in the intervening seven ths The only difference to clinical examination the presence (already mentioned) of the left d facial palsy

Albright and others (1937) record personal observations on five cases and report six somewhat similar cases from the literature (see table) They were also able to find four recorded cases in males, though pigmentation was present in three of these, none showed precocious puberty In a later communication Albright, Scoville, and Sulkovitch (1938) describe two more male cases (personally observed) with pigmentation and fibrocystic disease of bones but without precocious puberty, and they quote a third case The literature contains at least one further male case in this group, described by Hirsch (1929) Albright postulates that the whole syndrome may be due to a "disseminated neurological lesion" McCune and Bruch (1937) say that the clinical and pathologic relationship of the condition in males to that described in females is speculative

DISCUSSION

Of the cases in general we would point out the relative normality of calcium metabolism, that there is a tendency for the bone lesions to be mainly unilateral and for there to be a partial correspondence between the distribution of the skin pigmentation and the bone lesions These points are stressed by Albright and others in their paper The radiographic

SUMMARY OF CASES OBSERVED AND COLLECTED BY VARIOUS AUTHORS

thorities		Sex	Age in years— At onset of bony symptoms	At onset of menstruation	At appearance of secondary sexual characters	Pigmentation	Bones affected	*Laboratory findings*	*Biopsy*	Exploration of neck	*Remarks*
right nd hers 937)	(1)	F	8	7	12	Yes	Right side left scapula, humerus, radius	Blood-calc and phosph, phosphatase and calc balance normal	Osteitis fibrosa	Not done	—
	(2)	F	10	1	Not stated	Yes	Right pelvis and leg	Blood-calc and phosph, and phosphatase normal	Osteitis fibrosa	Not done	—
	(3)	F	3½	? 4½ mths *	½	Yes	Widespread both sides	Ditto	Osteitis fibrosa	Not done	Explored for suprarenal tumour none found Mentally retarded
	(4)	F	? 8	3½	Early	Yes	Right sided except skull where mostly left sided	Ditto	Osteitis fibrosa	Not done	—
	(5)	M	4	—	12	Yes	Widespread both sides	Blood-calc and phosph normal, phosphatase increased	Osteitis fibrosa	Yes no tumour found	—
ell (1922)		F	1½	1½	Not stated	Yes	Not stated	Not stated	None	Not done	At age 9 had secondary sex characters of a child of 15
aupp 932)	(1)	F	2	3	? 2	Yes	Bilateral	Blood-calc and calc in urine normal	Osteitis fibrosa	Yes no tumour	—
	(2)	F	2	9	9	Not mentioned	Bilateral	Blood-calc and calc balance normal	Osteo dystrophy	Yes no tumour	First fracture at 6 years
Stalman (1933)		F	5	½	Not stated	Yes	Bilateral	Not stated	None	Not done	At age 5 had pubic hair and breasts developed
apper and isel (1933)		F	7	7	7	Yes	Bilateral	Blood-calc 12 6 mg	? xanthomatosis	Yes, twice no tumour	Described as diffuse xanthomatosis subsequently developed sarcoma of left hip Mentally retarded
oldhamer (1931)		F	3	2	Not stated	Yes	Left-sided	Blood-calc once 12 0 mg	Osteitis fibrosa	Not done	—
cCune and ruch (1937)		F	2	2	4	Yes	Bilateral right more than left	Phosphatase increased	Osteitis fibrosa	Yes no tumour	Hyperthyroidism Basal metabolic rate + 6 per cent

* Some bleeding took place at 4½ months, menstruation established at 5 years

appearances of the skeleton, at least in advanced cases, are indistinguishable from those seen in other types of fibrocystic disease of bone

It is possible that these cases may be examples of hyperparathyroidism observed in a quiescent phase, but the bizarre association of the bone changes with cutaneous pigmentation in both sexes and precocious puberty in females (developing at the time when bone softening first gives rise to symptoms) points to the condition being a specific entity. Possibly also the male cases should be regarded as distinct from the female in that precocious puberty does not occur. In none of the cases (six in all, with five female) in which the neck was explored was a parathyroid tumour discovered. Of particular interest in our patient was the bilateral facial palsy, but we are unable to suggest any connexion between this and the other features of the case.

SUMMARY

A case of fibrocystic disease of bone is described in a woman of 33 in whom extensive bony changes were associated with premature puberty and cutaneous pigmentation. A summary is given of twelve similar cases reported elsewhere, eleven of whom were women It is suggested that the condition is a clinical entity.

We wish to thank Dr. McAlpine, Mr. Gordon Taylor, and Dr. Beaumont (under whose care the patient came in at various times) for allowing us to publish the case; Prof. Dodds for much help and advice and the use of the biochemical data; and Prof. McIntosh and Dr. Graham Hodgson for the assistance afforded by their departments.

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> ". . . we are able to discern a kind of nature-mind spectrum; for there appears a roughly given hierarchy of five ascending levels—mathematical, physical, biological, psychological and social Each level has its appropriate special language. The basic corresponding concepts are respectively: *number* at the mathematical level; *matter* at the physical level; *organism* at the biological level, *mind* at the psychological level, and *society* at the social level If we choose to select one of these as somehow more real than the others, a great distortion arises in our point of view For example, if we regard the physical level as the most fundamental, we become materialists But why make such an unnecessary choice? . . . we have come to realize that our only approach to a better understanding of the world is by means of a widening succession of abstract ideas, each explaining imperfectly some aspect of the stupendous whole."—George D. Birkhoff, *Science*, Dec. 30, 1938, p. 601; *Nature, Lond.* Jan. 14, 1939, Suppl p. 60

TREATMENT OF PNEUMONIA
WITH 2-(*p*-AMINOBENZENESULPHONAMIDO) PYRIDINE (M. & B. 693)

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(Concluded from p 317)

Randfontein Estates Ltd. Hospital

Dr P A. Peall
SENIOR MEDICAL OFFICER

This hospital serves a population of 20,000 nati miners Each native is thoroughly inoculated proph lactically with pneumonia vaccine within three wee of beginning work The incidence and mortality ra from pneumonia in recent years has been relativel low, and the interesting feature on this mine is th cases of pneumonia due to pneumococcus typ present in the vaccine occur but rarely It seems th immunologically the vaccine has been effective i its purpose (Lister and Ordman 1935).

There were 57 adult native male patients in th control series and 58 in the series treated wit M. & B. 693 There was 1 death in each series O the basis of case-mortality rate it is impossible t evaluate the therapeutic use of the drug in pneumonia But, on the other hand, table I shows that the dru has been effective in reducing the period of pyrex and the total period of stay in hospital The actio of the drug is very noticeable, the temperatur reaching the normal by crisis on the second or thir day. The pulse-rate falls to normal ten to twelv hours after the temperature With the fall of temperature and pulse-rate the general condition is remarkab improved—much more so than after a natural cris

Several cases on admission were clinically diagnos as pneumonia and given the drug, crepitations wit soft tubular breathing and scanty rusty sputu being observed These cases were subsequentl excluded from the experiment, because the loba pneumonia was not confirmed radiographically I is quite possible that in these cases consolidation o the lung was inhibited by the drug.

An average of 19–22 g of the drug was given t each case in the treated series. On admission th patient was given 4 tablets repeated in four hour then 2 tablets every four hours for forty-eight hour then 1 tablet four-hourly for forty-eight hours It is quite possible that equally good results cou be obtained with smaller doses.

Every case was radiographed with portab apparatus, and, if any doubt existed as to the presen of lobar pneumonia, radiography was repeated i twenty-four or forty-eight hours No doubtful cas were included in the experiment The Wasserman reaction of the blood of every patient was teste There was a strongly positive reaction in 10 of th control cases and 8 of the treated cases In the trea series 4 other cases gave a doubtful Wasserman reaction.

The usual routine treatment for lobar pneumonia was given to all cases—i e , continuous administration of oxygen by nasal tube, ice bag to præcordia, intravenous saline and glucose in very toxic cases, and stimulants when indicated Specimens of sputum were submitted to the South African Institute for Medical Research for bacteriological investigation as soon as the diagnosis of lobar pneumonia was made but before the first dose of the drug had been administered

Table I shows that from the point of view of age groups, tribal distribution and physical signs, the population in the series of control and treated cases were experimentally comparable Similarly, the period of illness before admission to hospital is approximately the same in both series and is between one and two days

The total number of days in hospital with pyrexia in the control series averaged 7 8 as against 2 8 in the treated series Further, 87 6 per cent of the treated cases showed a normal temperature on the third day in hospital, whereas in the control series the corresponding figure is only 7 2 per cent The duration of stay in hospital was 16 6 days in the treated series and 24 days in the control series

No serous effusions or empyemas were encountered in either series Antipneumococcal serum was not administered Vaccine treatment in hospital was given in about half the cases in each series, when 3 c cm of the institute's pneumonia (compound) vaccine was administered on three occasions at daily intervals (1 c cm in each dose)

The following is a note on the fatal case in the treated series :—

CASE 22704 —Native Right upper-lobe and left-lower-lobe pneumonia, type XIX Very ill on admission Confirmed by radiography Died on fifth day in hospital

Post mortem pneumococcus type XIX and *Staphylococcus aureus* were isolated from the lung

CONCLUSIONS

In this group of cases M & B 693 was effective in reducing the period of pyrexia and the total period of stay of natives in hospital

Witwatersrand Native Labour Association Hospital

DR A I GIRDWOOD

SENIOR MEDICAL OFFICER

Patients admitted to this hospital are derived from the adjoining compound in which are temporarily housed those natives who have just arrived on the Witwatersrand after previous medical examination and are ready after a further medical examination for distribution to the various mines to which they have been allocated Similarly, in this compound there arrive for a few days' sojourn those natives who have completed their mine contract or for reasons of illness have been repatriated by the mine This means that patients in the hospital are derived from a variety of sources and include natives without previous mining experience, with mining experience of varying duration, and healthy and debilitated or otherwise unfit natives.

Table I shows that 24 natives are included in the experiment—all adult males The majority were newly arrived "tropical" natives from Nyasaland who had en route received one prophylactic inoculation against pneumonia It is well known locally that "tropical" natives—those derived from Northern Rhodesia and beyond—are more susceptible to pneumonia than are the natives from the Union of South Africa

It has been difficult to assess the period of illness before admission to hospital, but, generally speaking, since the compound natives are under close supervision, admission to hospital can be taken to have occurred within a day, or at most two days, of the onset of the illness

The diagnosis was not confirmed radiographically but diagnosis of pneumonia was not made until definite signs of consolidation appeared It is for this reason that the number of days in hospital, before the drug was administered, was on an average 2 2, the bulk of the patients receiving their first dose on the second or third day The pyrexial period after the administration of the drug was one day only in 44 per cent of the cases, two days in 22 per cent three days in 17 per cent , four days in 13 per cent and five days in 4 per cent This gives an average of 4 3 days per case in hospital with pyrexia There were nearly twice as many cases of pneumonia terminating by crisis as by lysis in this treated series Table I shows that the average number of days' stay in hospital per case was 24 4

The amount of M & B 693 given was usually 2 tablets four-hourly for forty eight hours, then occasionally 1 tablet four hourly for twenty four hours It seems that this dosage, which averaged 14 2 g per case, was rather on the low side, particularly in the early stages of the illness, and may account for the comparatively long detention in hospital of the pneumonia patients Toxic symptoms with the drug were not observed except in one case in which there was vomiting Pneumonia vaccine 1 c cm was administered in four cases in hospital Serum was not given in any of the cases

The following is a summary of the fatal case —

A Nyasa native, aged 26, was admitted with pneumonia showing consolidation of the right middle and lower lobes There was obvious jaundice Three days elapsed before the diagnosis became clear and thus before the drug was administered The pyrexia lasted three days followed by a normal period of two days, with a temperature again for three days, when death occurred This patient had received 15 g of the drug There was much drowsiness at the completion of the treatment

Post mortem there was a consolidation of the right-middle and upper portion of the lower lobes All the organs were bile-stained Unfortunately neither the sputum in this case nor the lungs at autopsy were submitted for bacteriological investigation The reason why the case was not amenable to the drug is not clear, but it is to be noted that the patient was severely ill with jaundice on admission

CONCLUSION

Although there are no controls in this group of cases I am satisfied that M & B 693 has been effective in appreciably reducing the duration of pyrexia in pneumonia in natives, especially "tropical" natives in whom pneumonia is generally a severe disease

Bacteriology, Mortality, and Defervescence

DR ORDMAN

At the outset of the experiment it was arranged that a specimen of sputum be submitted to the South African Institute for Medical Research for bacteriological investigation from each case of pneumonia in the control and treated series from the various hospitals The specimen was taken as soon as the diagnosis of pneumonia was clinically,

TABLE II—BACTERIOLOGICAL ANALYSIS OF THE PNEUMONIA CASES IN THE EXPERIMENT

Organisms recovered		City Deep Ltd				Randfontein Estates Ltd				W N L A		Johannesburg Hospital								Total cases		Total Deaths	
												Non-Europeans				Europeans							
Type of pneumococcus	Other†	Controls		Treated		Controls		Treated		Treated		Controls		Treated		Controls		Treated		Controls	Treated	Controls	Treated
		C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D				
1	—	1	..	..	..	3	..	2	..	..	..	15	2	14	1	9	3	3	..	37	26	7	2
	H	1	..	..	..	1	..	..	..	..	..	2	1	1	..	1	..	..	..				
	F	..	..	1	..	..	..	1	..	..	..	2	..	2	..	..	..	1	..				
	HF	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	..	..				
	A	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1				
2	—	2	..	1	..	..	..	..	..	1	..	7	3	8	..	..	..	2	..	12	18	3	1
	H	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..				
	F	..	..	1	..	..	..	..	..	..	..	..	..	2	..	1	..	..	..				
	FA	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..				
	HFA	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..				
3	—	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	1	2	5	—	1
	H	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..				
4	—	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	2	1	1	—
	F	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..				
5	—	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	—	6	—	—
	F	..	..	1	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..				
6	—	..	..	1	..	1	..	1	..	1	..	..	..	..	..	..	..	..	..	1	4	—	—
	F	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..				
7	—	3	1	2	..	2	..	1	..	1	..	4	..	3	..	..	..	..	..	10	15	1	—
	H	..	..	..	..	..	..	..	..	1	..	..	..	2	..	..	..	..	..				
	F	..	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..				
	HF	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..				
8	—	1	1	1	..	..	..	..	..	..	..	3	..	1	..	..	..	..	..	6	3	1	—
	H	..	..	..	..	2	..	..	..	1	..	..	..	..	..	..	..	..	..				
9	—	5	..	..	..	2	..	..	..	..	..	1	..	..	..	..	..	..	..	10	2	1	—
	H	..	..	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..				
	HF	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..				
	F	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..				
10	—	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	—	—
	HF	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..				
11	—	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	2	—	—	—
12	—	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	3	1	—	1
	F	..	..	..	..	..	..	..	..	..	..	2	..	1	1	..	..	..	..				
15	—	..	..	2	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	—	3	—	—
17	—	..	..	..	..	..	..	1	..	..	..	2	..	1	..	..	..	..	..	3	2	—	—
	H	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..				
18	—	..	..	..	..	..	..	..	..	..	..	2	1	..	..	..	..	..	..	2	—	1	—
19	—	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	—	4	—	1
	H	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..				
	F	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..				
	A	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..				
20	F	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	—	—	—
21	—	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	—	3	—	—
23	—	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	—	1	—	—
25	—	2	..	4	..	..	..	4	..	..	..	2	..	..	..	..	..	..	..	6	8	—	—
	F	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..				
27	—	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	—	1	—	—
32	—	..	..	..	..	1	..	..	..	..	..	1	..	1	..	..	..	..	..	3	2	—	—
	F	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..				
	H	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..				
"T"*	—	1	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	2	1	—	—
Unclassified	—	4	..	7	..	4	..	2	..	1	..	1	..	1	..	2	..	2	..	17	19	—	—
	H	..	..	..	..	1	..	1	..	..	..	2	..	..	..	..	..	..	..				
	F	..	..	2	..	2	..	3	..	..	..	..	..	..	..	..	..	..	..				
	HF	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..				
	HA	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..				
Not recovered	—	21	1	9	..	18	..	14	..	12	..	8	..	11	1	2	..	6	..	71	97	1	2
	H	2	..	8	..	5	..	9	..	..	..	2	..	1	..	1	..	..	..				
	F	2	..	6	..	1	..	3	..	1	..	3	..	4	..	1	..	1	..				
	HF	2	..	..	..	..	..	2	..	..	..	..	..	1	..	..	..	1	..				
	HA	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..				
	A	..	..	1	..	..	..	1	..	..	..	..	..	2	1	..	..	..	..				
	HFr	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..				
	Fr	1	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	1	..				
Not examined	..	45	1	46		6		1	..	3	1	18	8	6	1	9	2	2	..	78	58	11	2
Totals ..	..	100	4	100	0	57	1	58	1	24	1	86	16	71	6	27	6	27	2	270	280	27	1

* Type "T" = A South African type of the pneumococcus not represented in the American (Cooper) classification (Ordman 1

† H = Hæmolytic streptococcus; HF = *H. streptococcus* and *H influenzæ*, HFA = *H streptococcus*, *H influenzæ*, and *Staphylococcus aureus*; F = *H influenzæ*, A = *Staphylococcus aureus*, Fr = Bacillus of Friedländer C = cases, D = deaths

established, and in the treated series just before the administration of the first dose of the drug

In the laboratory the sputum was cultured on blood-agar medium and in broth for 18–24 hours in the incubator at 98 4° F The colonies found were subsequently examined and studied in detail when necessary In almost every instance the *M catarrhalis* and non-hæmolytic streptococcus were found The pneumococcus, hæmolytic streptococcus, *H influenzæ*, Friedländer's bacillus *Staphylococcus aureus* diphtheroid bacilli, and coliform bacilli were recovered in different specimens In table II and in the remarks that follow relating to the experiment record has been made only of the pneumococcus, hæmolytic streptococcus, *Staphylococcus aureus*, and Friedländer's bacillus—organisms considered to be significant from previous experience of local cases of pneumonia

The typing of the pneumococcus was carried out by the *Quellung* method of Neufeld In the earlier part of the experimental period this test was done on the sputum as received, but shortly after the experiment was begun the *Quellung* test was performed on the sputum concentrated as to the organisms present by the method of Taplin, Meneely, and Hettig (1938) It seemed clear from confirmatory experimental observations carried out in this laboratory that this concentration method was of greater value in sputum typing than the method of direct typing in that the possibility of missing pneumococci occurring in scanty numbers was much diminished

Although a pneumococcus type could be determined by the *Quellung* method on the concentrated sputum, it did not necessarily follow that a pneumococcus would be recovered on cultivation of the specimen In all cases in which the pneumococcus was recovered from culture from the specimens of sputum received it was separately typed, and in every case the type found corresponded to that obtained by the *Quellung* test on the original sputum Frequent mouse inoculation confirmatory tests were carried out when necessary

Table II summarises the bacteriological findings in the control and treated cases of the various groups

An analysis has been made of the bacteriological findings in every specimen of sputum received during the experimental period Although 682 specimens were originally submitted for bacteriological examination 168 were cancelled from the series, for the corresponding cases were subsequently discarded from the experiment as not being true cases of pneumonia There were 550 cases of pneumonia in the experiment 270 controls and 280 treated cases Of these 550 cases 414 (75 3 per cent) were bacteriologically studied

Table II shows that in the control series 15 of the 27 fatal cases were distributed as follows —

Type I	7	Type VIII	1
„ II	3	„ IX	1
„ IV	1	„ XVIII	1
„ VII	1		

In 1 instance the pneumococcus was not recovered In 11 fatal cases no bacteriological specimens had been submitted for bacteriological examination

Of the 10 fatal cases in the treated series 6 were distributed as follows —

Type I ..	2	Type XII	1
„ II	1	„ XIX	1
„ III	1		

In 2 instances the pneumococcus was not recovered and in 2 fatal cases specimens were not examined

From this it appears that M & B 693 did not prevent the deaths in 2 out of 26 cases of type I infection, in 1 out of 16 cases of type-II, in 1 out of 5 cases of type III, in a single case of type-XII in 1 out of 4 cases of type XIX, and in 2 out of 95 cases in which the pneumococcus was not recovered Two fatal cases had escaped bacteriological study

Fleming (1938) has shown that the action of M & B 693 against the pneumococcus is enhanced by the presence of the specific antibodies of this organism Indeed, he has advocated the use of anti pneumococcus serum along with the drug in the treatment of pneumonia A study on these lines was not carried out during the course of this experiment But it is of importance to note the results of the group experiments among the natives on Randfontein Estates Ltd as compared with those of natives admitted to the Non European Hospital, Johannesburg In the latter the mortality rate in the control group was 18 6 per cent., whereas that of the treated group was 8 5 per cent. A very similar case mortality rate obtained in the European patients of the Johannesburg Hospital (see table I) In the treated cases on the Randfontein Estates the case mortality rate was 1 7 per cent The question arises why the natives in the treated group on the Randfontein Estates showed so low a mortality-rate Three explanations suggest themselves as factors in this question (1) in the non-mining natives there is a longer period before admission to hospital (2) Randfontein Estates native miners are primarily a medically selected group of adult males of a certain age group and (3) the Randfontein Estates native miners have been previously prophylactically inoculated with a polyvalent pneumococcus vaccine It is impossible at this stage to be certain which factor or, possibly, combination of factors is important

If the group of mining natives prophylactically inoculated is compared with that of the non mining natives, regarding the period of pyrexia in hospital in the control and treated group, certain differences can be noted (table III)

TABLE III—COMPARISON OF DURATION OF PYREXIA IN PROPHYLACTICALLY INOCULATED MINE NATIVE AND NON-MINING NATIVE PNEUMONIA PATIENTS

—	Percentage of cases showing a normal temperature within four days of admission to hospital	
	Control	Treated
Randfontein Estates Ltd (prophylactically inoculated)	12 6	92 9
Non European Hospital (not inoculated)	38 5	60 6

The natives on the Randfontein Estates are all thoroughly inoculated with the pneumonia prophylactic vaccine as used on the mines of the Witwatersrand, whereas the native patients admitted to the Non European Hospital are not inoculated It must also, however, be realised that any helpful active immunity due to the vaccine (comprised of but a few groups) could apply to only a certain number of the Randfontein cases—that is, if we are to maintain our views regarding group specificity in pneumonia immunisation—and further, although *Streptococcus hæmolyticus* is also a constituent of the vaccine the immunity response to this organism is still in doubt The fact that the Non European Hospital cases in greater numbers show a termination of their pyrexia within four days in the control group may simply reflect the fact that on account of the greater delay before their admission to hospital a portion of the natural pyrexial period in pneumonia has occurred before their admission as hospital patients On the other hand, it is very striking that in the treated group the inoculated mine has practically 93 per cent. of its patients normal within three days, whereas in the Non-European Hospital only 60 per cent of the patients returned to normal temperature within four days after admission

The total days in hospital with pyrexia of natives in the control group on the Randfontein Estates is 7·4, whereas the corresponding figure for the control natives in the Non-European Hospital is 5 6 The latter figure is somewhat lower, possibly because of the longer period that elapsed before admission to hospital If the corresponding figures in the treated groups are compared, on the inoculated mine (Randfontein Estates), the stay of the natives in hospital before termination of pyrexia is on an average 2 8 days, and of the non-inoculated general native population 4 8 days, notwithstanding the fact that, as shown above, a portion of their pyrexial period occurred before their admission Further studies on these lines are necessary before any definite conclusions can be drawn

General Summary and Conclusions

(1) An experiment was carried out in Johannesburg on various population groups to investigate the therapeutic value of M & B 693 in pneumonia

(2) In native miners no significant difference was observed in the mortality-rates between the control and treated series of the groups, but a significant difference was observed in favour of the use of the drug, as regards the duration of pyrexia and detention in hospital and the improved clinical condition of the patients

(3) In the pneumonia patients, both natives and Europeans, of a general hospital (Johannesburg Hospital) the mortality-rates in the treated series were markedly reduced.

(4) Bacteriological studies showed that M & B. 693 was used in the treatment of pneumococcus types I–X, XV, XVII, XIX, XXI, XXIII, XXV, XXVII, XXXII, "T," and various "unclassified" types, as well as in cases of pneumonia in which the pneumococcus was not present.

(5) The influence of active immunisation on the action of M & B. 693 is briefly discussed.

(6) From the experiment it is clear that M & B 693 is a valuable drug for the effective treatment of pneumonia both in Europeans and in natives.

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KATHERINE BISHOP HARMAN PRIZE —The British Medical Association invite medical practitioners registered in the British Empire to submit essays for this prize not later than Dec 31 The prize was founded in 1926 to encourage "study and research directed to the diminution and avoidance of the risks to health and life that are apt to arise in pregnancy and child-bearing," and competitors may select the work they wish to present, provided it falls within this definition Further information may be had from the secretary of the association, B M A House, Tavistock Square, London, W C 1

THE USE OF STORED BLOOD FOR TRANSFUSION

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DURING the recent international crisis conditions were anticipated in which large numbers of emergency blood-transfusions might be necessary. To meet this need simple apparatus was devised for the collection, storage, and administration of blood withdrawn from healthy people The value of conserved blood has been established by extensive experience, especially in Russia (Skundina 1933, Filatov 1937, Yudin 1936 and 1937, and Bagdasarov 1937), Spain (Duran-Jorda 1937 and Saxton 1937) and the United States (Fantus 1937 and Goodall 1938), but precise technical details of the methods used are not available It appeared therefore that a summary of the results observed in the collection, storage, and administration of fifty lots of blood might be of value

COLLECTION OF BLOOD FROM DONORS

The apparatus (fig 1) consists of a litre bottle graduated at 100 c cm intervals to 1000 c cm., a rubber bung pierced by two glass tubes neither of which extends more than an inch into the bottle and rubber tubing 2 in long attached to the upper end of one of the glass tubes, into which is let a short glass connecting piece 2 in. from the end attached to the glass tube To the distal end of the rubber tube is attached a Keynes or other large needle, which is enclosed in a test-tube sealed with a cotton-wool collar The other glass tube is plugged with cotton-wool 500 c cm of preserving fluid, the formula of which is described in a subsequent paragraph, is introduced into the bottle A paper cover is fixed with an elastic band over the neck of the bottle, a spring clip is clamped on the rubber tube just short of the Keynes needle to prevent condensed moisture from rusting the needle, the test-tube containing the needle is slipped under a rubber band encircling the bottle, and the outfit is autoclaved After autoclaving, a small dry test-tube to receive blood for the Wassermann reaction and a tube containing 2 c.cm of a solution of 1 per cent. sodium citrate in normal saline for a sample of the blood to be used for grouping and cross-matching are slipped under the band completing the outfit

The bleeding is carried out under strictly aseptic conditions, the antecubital fossa being thoroughly cleaned with soap and alcohol. A sphygmomanometer cuff round the upper arm is pumped to a pressure of 80 mm Hg. 0 25 c.cm of a 2 per cent. solution of procaine is injected intradermally over a suitable vein and the Keynes or other large bore venepuncture needle is inserted into the vein The bottle receiving the blood is held as far below the arm as the length of the rubber tubing will allow and is gently agitated to ensure thorough mixing of blood and preservative A rapid flow is desirable, for a poor flow predisposes to clotting in the stored blood. The withdrawal of 500 c cm. of blood should take not longer than four to seven minutes. As soon as

500 c cm of blood has been collected the spring clip is clamped over the rubber tubing between the bung and glass connecting piece and the end of the longer rubber tubing is removed from the latter Two drops of blood from the detached end of the rubber tubing are run into the pilot tube for grouping and cross matching and a few c cm into the dry tube for the Wassermann reaction before the needle is withdrawn from the vein

The blood group is determined and the bottle labelled with donor's name group, and date of bleeding The results of the sterility test and Wassermann reaction are entered on the label later The pilot tube remains attached to the apparatus for cross matching at the time of the transfusion The blood is then stored at 4° C The following day a few c cm are withdrawn for the sterility test

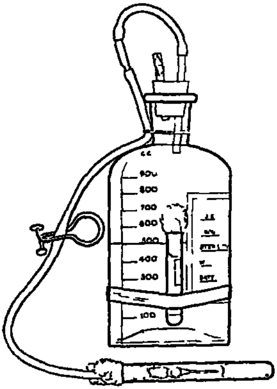

FIG 1—Apparatus for collection of stored blood

Originally, blood from the donor was run into the bottle through a long glass tube extending to within ¼ in of the bottom of the bottle Through this same tube the blood was withdrawn at the time of the transfusion, with a suction and pressure apparatus This long tube however predisposed to clotting even if washed through with citrate solution after the bleeding and was therefore discarded

THE PRESERVATIVE

The preservative used at first was 10 c cm of a 3 8 per cent solution of sodium citrate for every 90 c cm of blood The bottles were autoclaved containing 50 c cm of citrate solution 450 c cm of blood being added Twenty lots of blood were conserved in this way for six to fifteen days before use, and one lot for thirty three days It was found that clots formed in twelve of the twenty-one cases, and hæmolysis of varying degree occurred in over a half Although transfusion with such blood did not in our experience increase the incidence of reactions, it was clearly desirable to use a preservative which maintained the stored blood in better condition The solution (Bagdassarov 1937) of the Institute of Hæmatology and Blood Transfusion Moscow was therefore tried and has proved satisfactory Known as I H T its formula is sodium chloride 7 g, sodium citrate 5 g potassium chloride 0 2 g, magnesium sulphate 0 01 g, distilled water to 1000 c cm It is mixed volume for volume with blood

STORAGE

All the blood collected and used in this series was stored at 4° C. Experimental observations with small amounts of blood showed that complete hæmolysis occurred if the blood was allowed to freeze The period of storage before use varied from one to thirty-three days, the usual being six to fifteen days Changes were observed in the appearance of the blood as the period of storage lengthened With I H T preservative, the plasma above the layer of sedimented red cells remained clear up to the tenth or twelfth day, occasionally up to the twentieth day A zone of hæmolysis appeared after this period and gradually increased in intensity Samples of blood stored for a slightly shorter period showed a slight degree of hæmolysis when the blood was centrifuged after it had been shaken up and warmed for use The significance of these various grades of hæmolysis in relation to biological value of the blood is discussed later With citrate preservative, hæmolysis was apparent at an earlier stage These findings conform to those of other workers Bagdassarov (1937) noting hæmolysis with I H T about the fifteenth or sixteenth day, and Kovtunovich (1933) rather sooner, about the eighth day

The fragility of the red cells in the stored blood was not investigated This has been shown to increase from the fifth or sixth day, the cells becoming more and more fragile to hypotonic saline up to the fifteenth day, when spontaneous hæmolysis is apparent (Bagdassarov 1937, Balachowsky 1932)

It appears possible that the agglutinability of the red cells may be reduced by storage In three cases after a period of storage from six to fifteen days agglutination by high titre serum could be seen microscopically only The significance of this observation requires further investigation

STERILITY

The method employed in testing for sterility was as follows Four tubes containing heart broth were inoculated with fresh blood two with 2 c cm and two with 1 c cm, one from each set being incubated aerobically at 37° C and the other two anaerobically Cultures were plated out daily for fourteen days Three cases of contamination with *Staphylococcus aureus* occurred in the first 20 of the 50 samples collected The remaining 30 were sterile It is possible that this high rate of contamination was in part due to technical factors which were later eliminated The contaminant usually grew in about half the tubes, not developing until the sixth day This delay in the appearance of the contaminant suggests that it may be necessary to keep the cultures under observation for at least a week before reporting a negative One positive Wassermann reaction was found in the series

SOURCE OF BLOOD

The original supply of blood consisted of eleven lots obtained from volunteers during the period of emergency Subsequently the relations of patients receiving blood always proved willing to make up any blood used and often were glad to donate an extra supply, thus providing for emergency transfusion given to patients with no relations available Therapeutic venesection also provided a limited amount

METHODS OF ADMINISTRATION

The conserved blood was administered in three ways By a pressure apparatus devised to suit the containers in which blood was collected, by gravity, and by Marriott and Kekwick's continuous-drip apparatus

The pressure apparatus is illustrated in fig 2 A 50 c cm Record syringe is attached to a two way cock One distal limb of the two way cock is connected with rubber tubing 5 in long to a Record needle adaptor Into this rubber tube is inserted a glass connecting piece The other distal limb of the two-way cock is connected to rubber tubing 24 in long into which is inserted a glass bulb 1¼ in. in diameter and partially filled with glass-wool The glass-wool is thoroughly washed after insertion into the bulb The apparatus, except the syringe, is wrapped in lint and paper and autoclaved. The syringe is sterilised by boiling and allowed to dry, being lubricated with sterile olive oil immediately before use.

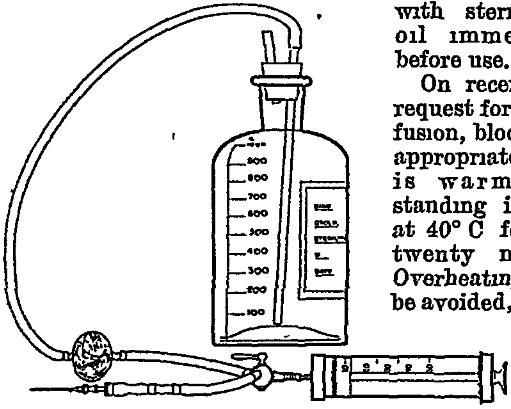

Fig. 2—Apparatus for administration of stored blood.

On receipt of a request for a transfusion, blood of the appropriate group is warmed by standing in water at 40° C for about twenty minutes. Overheating is to be avoided, and the blood should be used as soon as it is at the correct temperature. During this time the donor's cells from the pilot tube are cross-matched with the recipient's serum, macroscopic and microscopic tests being done At the bedside, the paper covering the neck of the container is removed, and the bung already in the bottle is replaced by a bung pierced by a long and a short glass tube (fig 2), the long glass tube reaching to the bottom of the bottle. Originally this bung was inserted at the time of the sterility test, but it has been found that during the period of conservation clots tend to form on the long glass tube. To the upper end of the long tube is attached the distal end of the longer section of rubber tubing of the apparatus

The apparatus is filled with blood, and air-bubbles are excluded, by holding the syringe vertically at the full length of the rubber tube above the container. Blood is sucked up through the filter into the syringe to about the 20 c cm. mark. The syringe now contains blood and the air from the dead space of the apparatus The air is expelled by inverting the syringe, holding the rubber tubing to which is attached the needle adaptor vertically above the syringe, adjusting the stopcock, and expelling all the air through the needle adaptor By setting the stopcock at the midway position, both limbs of the cock are closed, and the apparatus can be set down while the tourniquet is being applied If the needle is to be inserted into the vein while attached to the apparatus, it is necessary to suck back sterile saline through the needle until clear saline shows at the glass connecting piece as a means of indicating that the needle is in the vein. The needle can, of course, be introduced attached to a syringe and then fixed to the apparatus The blood is administered by suction and pressure, the two-way cock directing the flow of blood. If necessary, small-bore needles can be used. thus reducing to a minimum the incidence of cutting down on the vein. The whole operation can be carried out by a single person, the time between receiving the request for an emergency transfusion and its completion being about forty-five minutes, if the patient's serum is available for cross-matching, and an extra fifteen minutes if the patient's serur has to be prepared.

When the gravity technique or the continuou drip is used, the stored blood must first be filtere through muslin, for a teaspoonful or two of fi fibrin clot is often present even with I H T preservative.

RESULTS OF TRANSFUSION WITH STORED BLOOD

Fifty lots of stored blood have been administere to patients suffering from a variety of condition Mild transfusion reactions have occurred, and thera peutic results have varied Improvements in storag technique and experience with blood conserved fo various periods indicate that stored blood can wel satisfy the therapeutic requirements of transfusion

Therapeutic results.—Conditions treated include postoperative shock, acute loss of blood, anæmi from chronic recurrent hæmorrhage, anæmia o chronic sepsis, pregnancy, and chronic nephriti and a variety of blood diseases. Five patients wit *postoperative shock and two with postpartu* hæmorrhage were transfused at the request of th surgeons concerned The pulse and temperatur responded as favourably as to transfusion with fre-h

TABLE I—CASES IMPROVED, WITH BLOOD-COUNTS

Case	Conditions of stored blood			Volume of blood (c cm)	Indications for transfusion	Reactions	Increase in red cells and hæmoglobin	
	Period in days	Preservative	Hæmolysis				Red cells (mill/c mm)	Hæmoglobin
8	7	I H T	0	400	Anæmia of chronic nephritis	R	0 6	10
11	3	I H T	0	400	Chronic anæmia from recurrent bleeding from gastric ulcer	—	0 2	12
12 (*a*) (*b*)	13 13	C C	+ + + +	450 400	? Aplastic anæmia	T	0 2	6
14 (*a*) (*b*)	5 11	I H T C	0 0	400 400	Ditto	—	0 3	15
16	8	C	+	550	Anæmia of chronic sepsis	—		4
*18 (*a*) (*b*)	6 1	C I H T	+ 0	450 400	Ditto	—	2 0	41
22	4	I H T	0	400	Anæmia with carcinoma of rectum	R	0 5	8
26 (*a*) (*b*) (*c*)	10 10 6	I H T I H T I H T	+ + 0	400 400 500	Pregnancy anæmia	T	1 1	24
3	8	C	+	550	Preoperative preparation	—		8
27 (*a*) (*b*) (*c*)	9 19 19	I H T I H T I H T	+ + +	500 300 400	Anæmia following postpartum hæmorrhage	T	1 6	41
28 (*a*) (*b*) (*c*)	20 16 6	I H T I H T I H T	+ + + 0	400 400 500	Pregnancy anæmia	—	0	12
29 (*a*) (*b*)	20 10	I H T I H T	+ + +	500 450	Anæmia following hæmorrhage	—	1 0	16
30 (*a*) (*b*)	8 10	I H T I H T	0 0	250 500	Anæmia with uterine fibroids	R	[illegible]	17

* 1200 c cm fresh blood also given T = temperature · R = ri I.H.T = preservative solution used at the Institute of Hæ tology and Blood-Transfusion, Moscow (*sodium chloride 1* sodium citrate 5 g, potassium chloride 0 2 g, magnesium s phate 0 01 g, and distilled water to 1000 c cm). C = citr

TABLE II—CASES UNIMPROVED, WITH BLOOD COUNTS

Case	Conditions of stored blood			Amount of transfusion (c cm)	Indications for transfusion	Reactions	Change in red-cell and hæmoglobin levels	
	Period in days	Preservative	Hæmolysis				Red cells (mill/c mm)	Hæmoglobin (Haldane %)
4	7	C	+	250	Pregnancy anæmia	T	−0 1	− 2
9	4	I H T	0	400	Hæmatemesis	—	+0 4	0
3	8	C	0	400	† Aplastic anæmia	—	−0 5*	−11*
5 (a) (b)	8 6	I H T I H T	0 0	400 400	Ditto	R	+0 1	+ 2
7	15	C	+	500	Anæmia of chronic sepsis	—	−0 3†	− 4†
9 (a) (b)	15 8	C C	+ + +	400 300	Leuco erythroblastic anæmia with bone metastases	—	0	− 2
0 (a) (b)	13 6	C C	+ 0	300 500	As case 19	—	0	0
4	33	C	+ + +	500	Malignant cachetic anæmia	—	0	0

* 4 days after transfusion † 2 days after transfusion

blood Blood counts were not done in these cases, on account of the difficulty of evaluating their significance in dehydrated states

Tables I and II show the effect on the red cell counts and hæmoglobin in various conditions table I when there was an increase and table II when there was no increase The amount of each transfusion is tabulated in terms of volume of undiluted blood The poor results in two of the thirteen cases in table I (cases 12 and 28) followed transfusion with blood which would now be regarded as unsuitable for clinical use, on account of the degree of hæmolysis in the stored blood

Of the cases in table II, in which no improvement results, case 9 was vomiting blood and lost 10 oz during the transfusion, cases 19 and 20 had severe and ultimately fatal purpuric hæmorrhage from mucosæ, the blood used in case 24 was thirty three days old and grossly hæmolysed, and in case 15 disturbing factors unrelated to the use of stored blood were present In case 4 the transfusion was abandoned owing to technical difficulties after 250 c cm of blood had been given The cases in table II, with two exceptions were transfused with blood preserved with citrate during the early stages of this investigation when the technique of storage was still undeveloped

Other cases not improved by transfusion and not included in tables I and II were one of carcinoma of the stomach with hæmatemesis, moribund at the time of transfusion, one of acute leukæmia which proved fatal two days later, and one of fatal acute hæmorrhage to whom 1200 c cm of stored blood was given while the hæmorrhage remained uncontrolled

Transfusion reactions—Rigor followed transfusion in four cases and a rise of temperature in four Technical factors due to inexperience with stored blood, which have now been eliminated, probably accounted for four of the reactions Faint jaundice followed two continuous-drip transfusions in which the therapeutic results were good Hæmoglobinuria was not observed in any cases The incidence of reactions did not appear to be related to duration of storage, slight degrees of hæmolysis, or the presence of clots in the stored blood Rigors occurred with blood four to ten days old, temperatures with blood six to nineteen days old, and no reactions with blood one to thirty-three days old No conclusions can be drawn as to the relative incidence of reactions with citrate and I H T

CONCLUSIONS

The preceding observations indicate that blood *stored at 4° C with I H T* should satisfy the following standards before being used —

(i) The period of storage should not exceed ten to fourteen days if the best results are to be obtained Filatov (1937) advises a shorter period if blood has to be transported

(ii) Hæmolysis should be absent when the blood is inspected for fitness as it stands in the cold room The grade of hæmolysis which becomes apparent only with centrifugalisation of the blood after it has been shaken up and warmed does not appear to affect demonstrably the biological value of the blood Grosser grades, visible as a zone of red plasma above the layer of sedimented red cells in the blood while standing in storage, are not harmful but reduce the value of the blood

(iii) Clots in stored blood, although undesirable are not a contra-indication to its clinical use, provided all such blood is filtered before use

(iv) The sterility and Wassermann tests must be negative

Particular care is required in recording the blood groups at the time of bleeding Clerical errors may occur when several donors are bled at the same time Cross matching at the time of the transfusion must be a routine, and, when more than one lot of stored blood is given in one transfusion, each lot must be re grouped besides being cross matched

SUMMARY

(1) Simple apparatus for the collection storage, and administration of conserved blood is described

(2) Experience with fifty lots of such blood shows that most satisfactory results are obtained when blood is collected into I H T and kept for not longer than ten days, though blood stored for longer periods has been given with satisfactory results

(3) Reactions are not more likely to occur with properly conserved blood than with fresh blood

(4) Therapeutic effects of stored blood which satisfies certain conditions described are comparable with those of fresh blood

Our thanks are due to the Hon T C Stamp for investigating the sterility of the blood collected, to the technical staff for help in preparation of the apparatus, and to the Chief Medical Officer of the London County Council for permission to publish these results

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COLLECTION AND TRANSFUSION OF PRESERVED BLOOD

AN IMPROVED TECHNIQUE

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It is not the purpose of this report to adduce any further evidence of the value of preserved blood for transfusion. Reports from the Moscow Institute of Hæmatology, from the transfusion services of the forces in the Spanish war, and from various clinics on the Continent and in America leave little doubt that preserved blood is highly satisfactory therapeutically and well suited to circumstances of emergency.

Our interest in the subject was aroused by a communication of Goodall and his associates (1938) on the preservation of fœtal blood obtained from placentas, and received an impetus from the preparations made at the Mile End Hospital during the recent international crisis. We wish to report certain observations on the bacteriological aspects of blood preservation which led to the development of a method of collecting blood that reduces the risk of contamination to a minimum The procedure is simple and efficient and seems very suitable for use in war conditions

POSSIBILITIES OF CONTAMINATION

In the course of their article Goodall et al make the following statements :—

(a) " Cultures of the preserved blood are unnecessary because, at the low temperature for preservation, contamination, if present, could not propagate, and consequently would be so attenuated as to be innocuous "

(b) " In the many transfusions with fetal blood there has not been one untoward reaction, nor a single rise of temperature, even to a fraction of a degree, attributable to the transfusion "

Grodberg and Carey (1938), describing 75 transfusions of placental blood given at the Boston City Hospital, also lay stress on the absence of complications They assumed the bacteriological cleanliness of preserved blood from the sterility of a small sample taken at the time that the placenta is drained, no cultures being made at the end of the period of preservation

Our early experiences with bacteriological control were disquieting A total of 40 specimens of fœtal blood, collected according to the technique described by Goodall, were cultured after twenty-one days' preservation at a temperature of 4°–7° C We found that about 30 per cent were contaminated with staphylococci, *B coli* or *Str. fæcalis*, in that order of frequency. The appearance of a specimen of blood could not be relied upon as an indication of the presence or absence of contamination. We do not think that the examination of a small specimen at the time of collection (as relied upon by Grodberg and Carey) gives a useful indication of the bacterial content of the bulk of the blood, or that the low temperature of preservation is an insurance against propagation if contamination has occurred

It appears certain that many transfusions of placental, donor and cadaver blood containing living organisms have been given without harm, and even with benefit, to the recipient. It is comforting to know that this margin of safety exists for any intravenous infusion and that it is probably quite wide. This does not, however, remove the obligation to reduce the risk of contamination to a minimum, especially when blood is to be stored before use, and it seems clear that the method described by Goodall and most other methods are deficient in this respect

METHOD OF COLLECTION

As a consequence of these findings we have devised a technique which is equally suitable for the collection of adult and placental blood This method is completely closed and makes use of the efficient vacuum which is present in the various screw-cap containers supplied by the Southern Group Laboratory to the hospitals of the London County Council The method of general preparation of these containers has been described by McCartney (1935) Dr McCartney has now standardised the technical details of preparation so as to ensure that this vacuum is constant and adequate This is done by autoclaving the bottles with the screw-caps loose and tightening them immediately the autoclave is opened. The vacuum so produced is sufficient nearly to fill the bottles with fluid The rubber diaphragm used is 3 mm thick and a ¼ in hole is punched in the metal screw-cap to allow a needle to be inserted through the rubber We add about 40 c cm of glass shot (diameter 2–3 mm) to each bottle before autoclaving

Preservative solution —We have used the preservative known as " I.H T fluid." evolved at the Moscow Institute of Hæmatology, for which the following formula has been given by Balachovski and Guinbourg (1934) sodium chloride, 7 00 g ; sodium citrate, 5 20 g ; potassium chloride, 0 20 g ; magnesium sulphate, 0 04 g ; water (redistilled) to 1000 c cm. This fluid has given satisfactory results when mixed with an equal quantity of blood It should be noted, however, that it contains a comparatively small amount of sodium citrate and that if preserved blood be mixed with a fluid, such as gum-saline, which contains calcium, coagulation may occur (Goodall's instructions for the preparation of preservative fluid are misleading; they result in a solution which is five times too dilute and therefore hæmolyses blood and fails to prevent coagulation)

I H.T. fluid should be used when blood is to be stored for more than a few days In war conditions when the storage period would probably be very short, it would be permissible to employ a 3 8 per cent sodium-citrate solution.

Collection of blood from an adult donor—Two sizes of vacuum bottle have been used: a 600 c cm bottle containing 200 c cm of I H.T fluid and a 1200 c cm bottle containing 400 c cm The amount of blood required for transfusion is variable and wastage can be avoided by use of the smaller bottles three of which may readily be filled at a single venepuncture. At the time of collection blood is also drawn into two small tubes; one of these contains I H.T. fluid and is used for grouping and direct matching, the other being used to collect blood for the Wassermann test. A label is attached to the collecting bottle in such a position that its upper edge when the bottle is inverted, indicates the level to which the blood should be collected The apparatus required is —

Vacuum bottles (600 c cm or 1200 c cm) containing I H T fluid (200 c cm or 400 c cm respectively)
5 c.cm vacuum bottle containing 2 c cm I H T fluid (for grouping)
Dry tube (for Wassermann reaction)
Two short bevelled olive mounted, internally polished intravenous needles, bore 15/10, one 5 cm , the other 10 cm long, attached at either end of a 0 in length of rubber tubing (These are dry sterilised, the needle points being protected in glass tubes)
Local anæsthetic, syringe, sphygmomanometer, &c

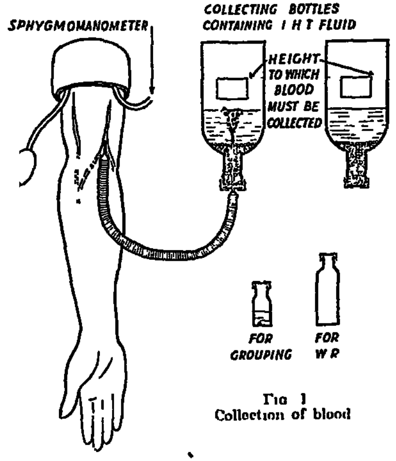
SPHYGMOMANOMETER
COLLECTING BOTTLES CONTAINING I H T FLUID
HEIGHT TO WHICH BLOOD MUST BE COLLECTED
FOR GROUPING
FOR W R

Fig 1
Collection of blood

It is desirable that the vein selected should be of reasonable size Any vessel into which a French's needle could be inserted, and many which would be rather small for this, may be used without difficulty Small veins may give trouble because of the tendency of their walls to collapse on to the point of the needle when the flow of blood is insufficient to supply the demands of the vacuum

A little local anæsthetic is injected intradermally and the short collecting needle is inserted into the vein As soon as the blood flows the long distal needle is pushed through the sterile rubber diaphragm (and the shot) of the first collecting bottle where it is retained until the required amount of blood has been drawn in It is then transferred to the succeeding collecting bottles and finally to the two small containers The vacuum bottles should be inverted during collection and the blood then issues directly into the preservative fluid which promotes mixing, prevents frothing and minimises hæmolysis and clot formation (*fig* 1) The needle should pierce the rubber diaphragm vertically to avoid air leakage, which may account for the occasional contaminations which occur These needles are smaller than French's needle (and are consequently easier to handle) but the flow of blood is so rapid that trouble with clotting during collection has never been encountered All those who have used this method of collecting blood are unanimous in their appreciation of its simplicity and efficiency

Collection of placental blood —For collecting placental blood smaller bottles containing 125 c cm of I H T fluid have been used The tissues of the umbilical cord are delicate and leakage of air round the needle should be prevented by applying pressure at the site of puncture, either with the fingers or preferably with a rubber covered clamp It may be necessary to rotate the needle occasionally during collection to disengage it from the wall of the vein, but in most cases the procedure is easy At this hospital a Wassermann test is performed upon every mother and therefore need not be performed on the placental blood

After collection all blood is cleansed from the surface of the bottle caps and the bottles are then marked with the date and source of collection, fastened together and placed in the refrigerator (4°–7° C) The blood in the small container is grouped and a distinctive coloured label indicating the group is attached to each bottle The store of blood is inspected periodically and any specimens in which deterioration is evident are discarded The period at which this has been necessary has varied from three to six weeks and, as a further contribution to the bacteriological control, all such specimens have been cultured aerobically and anaerobically before being thrown away

AMOUNT AND STERILITY OF BLOOD OBTAINED

As a source of supply *placental blood* has not fulfilled our expectations The average yield has been less than 100 c cm and does not justify the expenditure of time on the part of the medical staff We recently entrusted the collection to the maternity nursing staff, but the results of the bacteriological examination of specimens collected by them have so far proved unsatisfactory Some placentas contain only a very small amount of blood, which is discarded at once but many specimens of 100–120 c cm can be obtained and might be worth preservation as auxiliaries to a store of blood The blood is easily grouped, keeps well, and may be transfused with the same results as blood from adult donors

Of the first 21 specimens that we collected by the improved method only 1 was found to be contaminated when cultured fifteen days after collection This grew two colonies of *Staphylococcus albus* These results represent a considerable advance upon those we *obtained using Goodall's technique of collection*

Adult blood —In all, 40 specimens of adult blood were cultured after periods of preservation varying from twenty one to forty two days Before culture these specimens were incubated at 37 5° C for twenty four hours to encourage the growth of any organisms which might be present Of the 40 specimens 38 were found to be sterile and the remaining 2 each grew a few colonies of *Staphylococcus albus* (In the case of one of these considerable air leakage was noted during collection and we now discard any such specimen) Varying degrees of hæmolysis occur during storage depending on the lapse of time and on the amount of violence to which the blood is subjected during and after collection Some specimens exhibit a surface layer of fat which may simulate a bacterial pellicle Small clots appear occasionally the reasons for their formation require further investigation but we have not discarded any blood because of their presence

METHOD OF TRANSFUSION

Preserved blood may be transfused by any of the methods in common use We prefer to give it directly from the bottles in which it has been stored without warming through a drip feed regulated to deliver about 60 drops per minute Filtration is necessary to exclude small clots which might obstruct the needles and the glass shot have proved adequate for this After trial of several different methods the following technique has been adopted

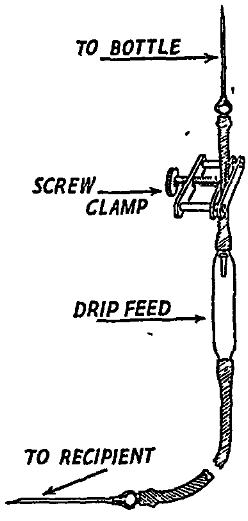

FIG 2 — Transfusion tube assembly.

The transfusion tube is assembled as illustrated (fig 2) The needles are both size 15/10 The drip-feed may be of any pattern but the volume of space below the nipple should be greater than half the capacity of the whole bulb. To minimise "dead space" rubber tubing of small bore (5/32 in. bore 1/20 in. wall) is used and the length of that part above the drip-feed should not be more than three inches. All joints should be airtight

Before transfusion the vacuum in the first container is replaced by filtered air through a needle When the air has reached atmospheric pressure a rubber bellows or Higginson syringe is attached to the air filter and three or, four blasts are given so as to introduce a slightly positive pressure The needle is then removed, the container inverted and suspended in a wire cradle With the screw-clamp closed, the proximal needle of the transfusion tube is inserted through the rubber diaphragm just into the mass of shot which have fallen into the neck of the bottle The distal needle is then elevated so that the drip-feed occupies a horizontal position, the clamp is opened and the blood allowed to fill the transfusion tube slowly (fig 3) As soon as blood issues from the distal needle all air will have been expelled from the system except that in the upper half of the horizontal drip-feed and the distal needle may then be lowered and introduced into the recipient's vein The transfusion proceeds for a few moments until the positive pressure in the container has been exhausted When the flow has become very slow a needle with an air filter is reinserted to act as air inlet and the transfusion then proceeds by gravity. We have observed that if both needle-points are buried in the shot air occasionally finds its way into the exit needle The inlet needle should therefore be *long enough* for its point to reach above the shot and its tube should be compressed with the fingers until it has reached this position (fig 4)

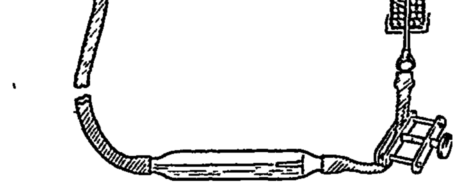

FIG 3—Filling of transfusion tube drip-feed horizontal

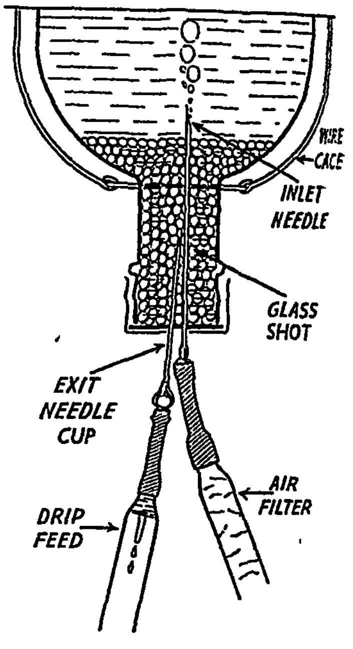

FIG 4—Showing relationship of needles to filter

The changeover to the second and subsequent bottles is effected by closing the screw clamp and transferring the two needles, the inlet needle being inserted first to remove the vacuum (No positive pressure is required in the second or subsequent bottles as the transfusion tube is now full of blood and exerts sufficient suction to start the flow) The rubber diaphragm withstands repeated puncture without leakage.

THE USE OF STORED BLOOD FOR TRANSFUSION

Our experience of the use of stored blood is not yet sufficiently extensive to indicate that it is free from disadvantages We have given 38 transfusions of adult and placental blood after periods of preservation ranging from two to six weeks One patient had a reaction of sufficient severity to terminate the transfusion, two others had rigors during the administration, and another developed an urticarial eruption two days after the transfusion In other respects the results have been satisfactory. These reactions occurred when the blood used for transfusion consisted of a mixture of adult and placental or of several placental specimens On each occasion the recipient's serum had been matched against the cells of each specimen separately. No reactions were seen when adult blood only was used even when it came from more than one source We have had the satisfaction of saving one life in circumstances of such urgency that the need to find a donor would have entailed fatal delay and we have been able to supply the needs of other hospitals on several occasions The maintenance of a supply of preserved blood of all groups for a single hospital is wasteful because the demand is not sufficient to absorb the supply. The disadvantage can be overcome by the organisation of a central "blood bank" for a group of hospitals each depositing an equal volume of blood in exchange for the amount withdrawn. Even then the demand must be large and constant, to turn over the supply before deterioration occurs The presence of a small store of group O blood to meet cases of extreme urgency seems to us to be desirable at any hospital Some form of blood storage organisation would be essential in war-time and our methods appear capable of development to meet this need.

SUMMARY

(1) An account is given of bacteriological investigations indicating the frequency with which preserved blood is contaminated

(2) A description is given of a simple and efficient technique of collection and storage which has been found greatly to reduce the incidence of contamination

(3) A technique of transfusion appropriate to this method of collection is described

(4) Some of the practical aspects of blood preservation are considered

We are indebted to Sir Frederick Menzies for permission to publish this report We also wish to express our thanks to Dr J F McCartney director of the Southern Group Laboratory, for his unfailing coöperation and helpful advice, and to Dr A. B Rosher, director of the Mile End Group Laboratory in which the bacteriological examinations were carried out

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CLINICAL AND LABORATORY NOTES

CARDIAZOL CONVULSIONS

THE SUBJECTIVE ASPECT

By J E O N Gillespie, M B Dubl , D P M
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Many writers on Cardiazol convulsion therapy have assumed that all or nearly all patients are terrified by the treatment, and some have suggested that its effect is due to the terror it produces and that it is thus the modern equivalent of the older methods of treatment such as whipping, rapid rotation and the like

In the present investigation I tried to determine the subjective attitude to cardiazol therapy of forty-two patients, but only twenty three were able to give reliable answers Thirteen were women and ten men, three being doubtful manic depressives and the rest belonging to the schizophrenic group The amount of cardiazol given varied from 4 to 13 c cm of a ten per cent solution and the number of injections from 1 to 30

Each patient was asked to give an account of his or her experiences and then leading questions were asked Three patients were indifferent to the effects of the cardiazol The rest found it unpleasant, nine using mild expressions such as "I don't like them," "I am rather afraid" or "Could I have it by mouth instead ?" The other eleven were stronger in their dislike, saying "They are terribly unpleasant," "The very thought of it makes me shrink with horror," or "I am terrified, nothing could frighten me more" While several patients asked that the injections should be stopped or some other treatment substituted, only three were actively resistant and required more than the usual steadying of the arm Two of these cases did not think that the injections were particularly unpleasant but objected to them for delusional reasons, fearing that they were going to be killed The third patient dreaded the injections because of the sensations they produced Four other patients were resistant at times

The majority disliked the sensation of losing consciousness and described it as being similar to having an anæsthetic or to fainting Their descriptions were mostly short and indefinite such as "I just went under," or "Faces grew dim," but in other cases there were sensations which were remembered clearly and which were very constant in their occurrence Feelings of dizziness, distancing of sound, and palpitation were common Some thought that they could hinder or hasten the loss of consciousness One patient saw flashes of blue and gold light and could feel her eyelids flickering , another had pleasant thoughts of a sexual nature , another always saw a photograph of her mother and heard her voice One man heard a noise of wind and saw everything "with a rainbow edge," another described going off as being like drowning with a bubbling in his ears and nose Ten patients noticed a pungent smell which they described variously as being sickly, like acid, chloroform, ether, iodoform or lavender A trace of the smell often remained when the patient regained consciousness, and after one injection a patient complained of the smell for two days Two patients did not know that they had become unconscious at all , two remembered dreaming , six complained of feeling sick for an hour or so after the injection and two actually vomited Patients were mostly slow to attribute any improvement in their condition to the treatment and some thought that it was a form of punishment

The patients' accounts tended to be clouded by their mental condition, and for this reason I decided to experience a cardiazol fit myself After the injection of 10 c cm of a ten per cent solution I felt my body and limbs coming to lie straight in the bed and my head turning to a central position Then very rapidly *something seemed to move in my arms and* thorax and to pass up to the base of my neck where it stopped and increased in intensity This sensation was not painful, but felt very clear and circumscribed, half way between thought and sensation like the ideas in delirium Unconsciousness developed quickly but otherwise its onset felt like the coming of normal sleep and was not resisted On awakening I had a mild occipital headache, some aching of the mandibular joints and was conscious of a pungent smell at the back of my nose At first I could remember almost nothing of the morning's events including the injection, and even the day before seemed indistinct, but otherwise feeling and comprehension seemed normal. Remembrance of the injection returned within a few minutes and of the other happenings of the morning more gradually, but even ten hours afterwards there was some retrograde amnesia For the remainder of the day the feeling was distinctly unpleasant, with headache, anorexia and malaise

SUMMARY

Inquiry was made into the subjective sensations of twenty three mental patients who received cardiazol injections No specific sensation was noted except that ten patients noticed a pungent smell when losing consciousness Less than half of the patients found the injections terrifying and only one of these was actively resistant Two other patients were resistant for delusional reasons

A personal experience of a cardiazol fit is described

The sensations were mildly unpleasant but not alarming.

I wish to thank Dr Porter Phillips, physician-superintendent of Bethlem Royal Hospital, and Dr. T. E. Harper, superintendent of Holloway Sanatorium for permission to publish this paper

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ADDISON'S DISEASE

IN A BOY OF 12

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Addison's disease in children is extremely rare The present case is interesting in that advanced tuberculosis of both adrenals was present at such an early age (12 years) and the symptoms strongly resembled those of appendicitis

The boy was admitted to the surgical side of Ancoats Hospital under the care of Mr. P. G. McEvedy, on Dec 10, 1938. There was a history of vague abdominal pain for two years, which was situated in the middle line and then radiated to the right iliac fossa for a week. He collapsed on Dec 5 with abdominal pain and vomited two or three times during the week before admission Bowels were constipated

On clinical examination by the resident surgical officer (Mr. J P Philp) there was no pyrexia. The general condition appeared good The tongue was clean and moist Examination of the abdomen showed tenderness with some muscular guarding in the right iliac fossa. There appeared to be a fairly mobile and somewhat tender mass palpable in the right iliac fossa. The colon was loaded. Per rectum there was tenderness on the right side. Fæces were present.

Appendicitis was considered a possibility, but doubt was felt regarding a definite diagnosis in this case The possibility of pyelitis was considered

On Dec. 11 the patient complained again of a severe pain in the right iliac fossa. On examination there was some guarding in the right iliac fossa There was no pyrexia Microscopical examination of the urine showed pus cells and a few epithelial cells; culture was sterile. A 24-hour specimen of urine was requested for examination for tubercle bacilli, but the patient died before this could be obtained

On Dec 12 his temperature rose to 99 2° F and on the 13th at 2 P M was 100° F, the child dying on the 14th with a temperature of 97 8° F. The pulse-rate varied between 100 and 120, being usually between 110 and 120.

NECROPSY

External examination.—The child appeared to be normally developed, with a generalised brownish pigmentation of the skin, of a type such as to attract the comment of one of the house-surgeons that his skin did not appear to have been washed, the colour being a dark brown and resembling the browning of exposed parts of the skin in the summer There were no special pigmented areas apart from the orbit The eyes appeared somewhat sunken, with a slightly deeper pigmentation in the skin over the orbits There were two or three small round dark-brown spots on the forearms.

Cardiovascular system—The heart and vessels appeared normal, except that the heart was possibly slightly small and the muscle somewhat brownish.

Respiratory system—The pleura was totally adherent to the chest wall. The lungs showed some congestion but otherwise appeared normal. The upper respiratory passages, larynx, trachea, and bronchi were normal.

Gastro-intestinal system—The pharynx and œsophagus appeared normal, although the tonsils showed some crypts. The stomach was very much dilated and contained about 200 c cm. of bile-stained fluid Small and large intestines appeared to be normal and showed no evidence of tuberculosis, but the large intestine contained scybalous masses The appendix was long and twisted back on itself. The peritoneum and pancreas appeared normal. The liver showed a small amount of perihepatitis.

Genito-urinary system—The right kidney contained a small tuberculous abscess in and near the cortex, about halfway down the kidney. The bladder walls appeared slightly thickened The generative organs appeared normal.

Ductless glands—The thyroid appeared normal The thymus was persistent and weighed 7 5 grammes Both adrenals showed caseation and a little calcification The spleen appeared small and friable

Nervous system—The dura mater was slightly adherent round the longitudinal sinus, and there were several small white spots in this area on th surface of the brain; otherwise the brain, pituitar and pineal body appeared normal

The cause of death was syncope due to the lack o adrenal secretion associated with Addison's disease

HISTOLOGICAL EXAMINATION

Section of one of the mesenteric glands showed no evidence of tuberculosis. Section of the righ tonsil showed some hyperplasia, increased vascularity and some fibrosis, but no evidence of tuberculosis Section of the left tonsil showed the presence of ver large crypts, with hyperplasia of lymphoid tissue but no evidence of tuberculosis. The brain on section appeared normal.

Both adrenals showed an extreme degree of caseation, with the typical giant-cells of a tuberculous inflammation of these glands. The sections showed practically no normal adrenal tissue left Section of the pituitary showed no disease, but the capillaries appeared to be unusually distended.

Section of the right kidney showed a caseous mass in the cortex just within the capsule, with lymphocytic exudate around, and some polymorphonuclear leucocytes and a few typical giant-cells. The renal tissue in and round this area was completely disorganised,

Section of the lung showed a little œdema but no evidence of tuberculosis Section of the thymus showed atrophy of some of the glandular structure, but the larger proportion appeared to be functioning Section of the liver showed some fatty change, chiefly an infiltration rather than a degeneration, with some dilatation of the bile-capillaries and cloudy swelling.

We acknowledge with thanks the assistance given us by Mr P G. McEvedy and the clinical staff in publishing this case

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"... Mirijevo, a village near Belgrade, where there are some twenty gypsy families whose material condition is comparatively good, is renowned for the fact that its gypsies eat carrion When a peasant has a sow or hog or an ox that has died of some disease, he buries it in a piece of ground near the road Someone will then inform the gypsies of the fact, and they will pay a small sum for the information . Some of the poorer gypsies eat carrion meat without special preparation, but others prepare it by washing, soaking with nettles a garlic, and boiling until the smell has gone Sedentary gypsies eat carrion meat only when with gypsies who prepare it in this way It is then said, however, to be tasteless, while those who express preference for the flesh of animals that have died, say that it is on account of its flavour, which is superior to that of slain meat Whether the sense of smell among gypsies is deficient is neither clear nor easy to ascertain Their vocabulary, though not decisive one way or the other, suggests that they do not discriminate very decidedly between smells good or bad"—Abstract in *Nature, Lond* Feb 1939, p 248, of paper by A. Petrović in *J Gypsy Lore Soc* 1939, 18, 1.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTION OF ORTHOPÆDICS

AT a meeting of this section held on Feb 7 the air was taken by Mr A ROCYN JONES, and a scussion on

Congenital Dislocation of the Hip

as opened by Mr H A T FAIRBANK The first sential, he said, was early diagnosis The younger e patient the simpler the treatment, the better e chance of permanent cure and the more perfect e hip when growth was completed A congenital formity might be suspected before the child began walk, and a greater effort should be made to get e cases earlier Any suspicious case should be nt to a radiologist By " pre dislocation " was eant the condition in which the acetabular roof oped and the centre for the femoral head was smaller an on the other side but displacement was absent only very slight These cases should be treated potential dislocations

The routine treatment should be bloodless reduction, nd fixation for long enough to make the reduction ermanent The one exception was subluxated ip in a child of four or five which should be treated y manipulative reduction and—after an interval— pen operation to improve the shape of the upper cetabular margin In other cases open reduction as quite unnecessary Bloodless reduction might e effected by Putti's method of simple abduction r by manipulation under anæsthesia followed by xation in plaster The first procedure became nsufficient at about the age of twelve months The bjects of manipulation were to reduce the dislocation nd to force the limb into the position required for tability and fixation Reduction by lifting should lways be tried before resorting to leverage, as it aused less stretching and trauma Leverage by orcible abduction was always necessary later to et the head well home in the socket The muscles hould be stretched as much as possible before tearing he longus, and should be kept as taut as possible hile sudden pressure was applied to the tendon A very important stage, after apparent reduction and one sometimes omitted) was to make sure the ead was well home by—in A Lorenz's words— "lifting the lid off the acetabulum" The idea was to put different portions of the capsule on the stretch and make sure that none of it was caught between the bones If the stretching of the hamstrings were stopped when the gracilis was felt to give way there was no danger to the external popliteal nerve

In difficult cases it should be remembered that reduction resulted always from the head slipping over the posterior margin of the socket, with the thigh in abduction Denucé's method and traction on the extended leg with hyperextension (to stretch the psoas) were useful techniques at times Before putting on plaster the stability of reduction should be tested by noting the angles of flexion and adduction at which redislocation took place The smaller the child the smaller the range of stability compatible with a good prognosis The knee should not normally be included in the plaster as functional activity and weight bearing were important adjuncts to reduction The opposite leg should be included only in the younger fat babies and when there was doubt about the stability of the undislocated hip Adduction was a dangerous strain on a hip that was not absolutely normal

Afterwards the child was nursed on a flat bed with a small square sandbag beneath the buttocks where the plaster did not cover In a week active and passive extension of the knee, and after a month walking, were started Abduction was not reduced until X-rays showed some improvement in the acetabular margin, about 12 or 14 months after operation Anterior subluxation was looked for at each monthly visit On removal of the plaster, a month or two later, abduction was quickly overcome by the child's own activity, but external rotation might take a little longer The position of the femoral head with regard to the centre of the acetabulum was of greater prognostic value than the shape of the upper margin of the socket

The greater the surgeon's experience the more inclined he was to lower the age limit for attempting reduction and to find reasons for not tackling obviously unfavourable cases Mr Fairbank said he had not had much trouble from antetorsion

The indications for open reduction were two when the hip was very unstable and not easily controlled by the axillary position, or the post reduction radiogram showed the head displaced outwards or upwards from the central position, and when manipulative reduction failed, the child was the right age and there was no contra indication to severe operation The "right" age was four at most for a bilateral case and rarely above six for unilateral dislocation Something should be done to improve the upper acetabular margin, if possible, the full "shelf operation" should be included This manœuvre was indicated in untreated unilateral subluxation in a child of four or five, and when a hip treated by a bloodless method threatened to relapse It was imperative in the untreated subluxated hip of four or five It was not difficult to make an upper lip, but it was difficult to make it in the right place

Mr HARRY PLATT reported on 280 cases in his experience 80 cases had been bilateral and 42 of the children had been male He had had, in addition, 24 cases of subluxation, which he regarded as generically different Of these, 2 had been bilateral and 4 had been males Only 17 cases of congenital dislocation and 4 of subluxation had been treated after the age of fifteen and only 8 cases of congenital dislocation had been less than a year old He had performed 31 open reductions and 29 shelf operations for congenital dislocation and 2 open reductions and 4 shelf operations for congenital subluxation The gradual abduction treatment for babies under twelve months had succeeded in 7 cases and failed in 2 cases Early diagnosis was very important Accidents and disasters had included 7 deaths 9 fractures and 1 case of infection The stigmata were asymmetry of the limb, asymmetry of skin creases, shortening, and limitation of abduction They might exist without dislocation, however, and the diagnosis must rest on radiography When they were so well marked at an early age that the mother noticed them, the dislocation very often proved to be of Putti's "primitive" type with real malformation of the femur, and reduction proved very difficult One of the cases successfully treated by abduction had been diagnosed at five months and cured after nine months on a divaricator He had only had one case that at all suggested spontaneous reduction

When he used manipulation Mr. Platt preferred Denucé's method and believed in stretching the capsule He included the knee and the opposite hip in the plaster, as this made for greater security and added comfort in nursing He used plaster for 9–12 months and in the second stage brought the hip into as much internal rotation as it would allow without forcing He used weight-bearing only after removal of plaster, when satisfied that the head was central and there was no muscle spasm. A check postoperative radiogram should be taken before the plaster was applied to show a concentric femoral head Of 31 cases treated by manipulation more than ten years ago, representing 40 hip-joints, 8 had been over five when treated: there had been 15 perfect results, 13 with good function but some blemish, 10 with fair function and anatomical incongruity, and 2 really poor results Unsatisfactory results were seen, even in children treated at the favourable age It was no longer justifiable for the orthopædic surgeon to learn from his own mistakes. No-one should treat these cases until he had served a long apprenticeship. Certain anatomical facts predisposed to failure; one was anomalous capsule attachment. If the capsule were attached to the middle of the head or adherent to the socket, apparent reduction was deceptive Another intrinsic cause of failure was inadequate development of head or socket. A nimbus of cartilage might prevent reduction. Osteochondritis might be present in quite young children or might develop after reduction, even when there had been no violence

Open reduction must be done early if at all. The capsular isthmus was common, and must be stretched or divided. A shelf was unnecessary if internal rotation could be secured and the head levered into the primitive socket Repeated manipulations should be avoided if open operation were to be considered There should be a period of mobilisation before any weight-bearing was attempted. A shelf which merely prolonged a sloping roof over an excentric reduction was useless, except to give a fine X-ray picture There was always a risk that the growth of the socket would be interfered with Sometimes a shelf was produced by nature

Mr. D. N. **Rocyn Jones** recorded 95 cases examined by himself; about 40 had had open operation There was a marked difference according to age; under four there had only been one failure to reduce In 7 cases constriction of the capsule had been seen at operation; it did not seem a common cause of failure. In 2 cases the capsule had been adherent to the false socket above the acetabulum In many radiograms the roof looked inadequate, and at operation very few looked hopeful The bony upper rim did not become defined and bony until after four. At least as much attention, therefore, should be paid to clinical as to radiological results. If fixation was maintained for more than a year, the results seemed better than after shorter periods The most successful type of operation seemed to be an attempt to turn the acetabulum over the femoral head with the insertion of a wedge There did not seem to be any undue shock about the operation; the shock seemed to be greater when the wet cold plaster was applied. Full function sometimes did not return until about two years after operation. The method of choice up to four was manipulation followed by plaster; at four or five it was arguable whether it was better to manipulate or do an open operation at once. In older children, or if manipulation failed, operation was indicated and should take the form of augmenting the roof of the acetabulum

Mr. G. F. **Batchelor** spoke in favour of putting up hips in internal rotation after the age of twelve months Anteversion was present in many hips It was best overcome by retention in internal rotation, and there was less likelihood of redislocation than in bringing it down from Lorenz's first position Moreover, in internal rotation it was easier to combine retention with function The hips need not be immobilised in a plaster spica Moderate abduction could be maintained by a bar between the knees. The advantages were · absence of wasting contracture, comparative freedom of the child, and functional activity encouraging normal development of the joint

Mr. **Whitchurch Howell** emphasised the importance of getting the patients up early, urine must not be allowed to stagnate in the kidney pelvis or renal calculus might result. He set the children up in an apparatus within 24–48 hours of operation, the patient could be tilted to various angles and could kick and stretch, and could be sent home early In his experience, dislocation of the hip was not infrequently familial. Open reduction should be done on an orthopædic operation table, and skeletal traction was helpful. There was considerable shock, and transfusion should be given as routine. The easier the dislocation, the easier the redislocation. Difficult cases should not be given up now that powerful skeletal traction was available

Mr. W B **Foley** spoke in favour of internal rotation, and thought that older cases might be reduced by a modification of the double abduction frame combined with traction, applied gradually A side pull could also be put on Operations were extra-articular, done on the frame, and were quite without shock

Mr. J C. **Scott** showed slides illustrating the apparatus Abduction up to 90° could be obtained, and then weight and pulley abduction applied

The **Chairman** commented on the great advances which had been made in the treatment of this condition. He was glad to learn that manipulation was still the treatment of choice

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MEDICAL SOCIETY OF LONDON

At a meeting of this society on Feb 13, with Dr C. E. **Lakin**, the president, in the chair, a discussion on the

Use and Abuse of Purgatives

was opened by Sir **Arthur F. Hurst** He described the physiology of the small and large intestine, explaining that food passed rapidly through the small intestine where it was churned by a process of peristaltic and segmenting movements, and nearly all digestible constituents had been removed by the time it reached the cæcum The semi-fluid material remained in the cæcum and ascending colon for some time, during which most of the water was absorbed Waves of contraction took place at certain times of the day, which carried the chyme through by stages into the pelvic colon Under normal conditions the transverse, descending and iliac colons were never filled but were merely passage-ways Peristalsis was only seen in the colon under exceptional conditions The mass movements usually took place soon after meals. There was a continual movement in the haustra of the colon, but one too slow to be perceived on the screen Defæcation was the result of a conditioned reflex which was originally learned by the infant when it was taught to empty its bowels in a clean way by being placed on a chamber The reflex induced a mass movement from the pelvic colon into the rectum, and tension on the rectal walls brought about a conscious desire to defæcate Evacuation was performed by voluntary and involuntary contraction of the abdominal and rectal muscles and relaxation of the anal sphincter Defæcation concerned the whole of the colon, and in persons who had voluntarily abstained from defæcating for a day for experimental purposes the first motion was soon followed by a mass movement in which the whole colon was cleared, and then by a second motion

Thirty years ago Sir Arthur had suggested that constipation should be divided into true colonic constipation, where passage through the colon was delayed, and dyschesia, in which there was a defect in the mechanism of defæcation He was now inclined to think that even the former group of cases were really due to dyschesia One of the commonest conditions for which patients came to a physician was a definite syndrome resulting from abuse of purgatives Two thirds of the patients were women, and they all complained of what they called constipation, but they all admitted that their stools were either liquid or semi solid—i e, that they were suffering not from constipation but from diarrhœa The fæces contained mucus and occasionally a little blood, and in some cases colitis was diagnosed all had abdominal discomfort, associated with much flatulence Some had attacks of pain, and some had had their appendices removed for such attacks Many had had adhesions divided, and an equal number had had adhesions made More general symptoms were anorexia, with loss of weight, fatigability and anæmia Some had become really constipated after stopping their aperients for a short time, but had been surprised at feeling better Some had taken gigantic doses, such as sixty senna pods every night, or a handful of liver pills Some thought they were constipated not through any irregularity of their bowels but because they had symptoms resembling those described in advertisements for liver pills The popular idea of the symptoms of auto intoxication led many patients to take aperients

After two or three weeks in hospital the majority of the patients were definitely cured All aperients were stopped, and they were given non irritating vegetable mucilage or a little paraffin The condition was explained to them and they were told that they would have to make an effort to empty their bowels Most patients began at once to get their bowels open and at the end of a fortnight had regular motions every day and were amazed to find how comfortable they were without aperients Mucilages and paraffin were not purgatives, but to a large extent replaced them Paraffin was less satisfactory, because it tended to make defæcation fragmentary, so that the colon was not properly emptied The basal mucilages left a clean colon and rectum and caused much less flatulence The best preparations were agar, the French Coreine, and the English Isogel Normacol contained an aperient, psyllium seeds Petrolagar acted only by the paraffin which it contained, the agar was merely an emulsifier A true purgative might be required for patients who must be spared effort in defæcation—e g, those with high blood pressure Infusion of senna pods was the best drug, as it had no effect on the small intestine and therefore did not flood the colon with largely undigested chyme The dose was easy to regulate. Briefly, Sir Arthur concluded, the abuses of purgatives were many but their uses were very few

Dr H L GLYN HUGHES, speaking from the angle of the general practitioner, said it was almost time purgatives were made dangerous drugs by statute Their chief danger was that they disturbed the normal rhythm Absolute regularity of the conditioned reflex was the principal aid to health Only harm could come from irritating aperients and coarse food The continual excessive use of alcohol, which excited catarrh, was in a way an abuse of a *purgative* Four types of constipation could be recognised atonic spastic, dyschesic, and that resulting from abnormal conditions of other organs or from disease The commonest form was the spastic, which was probably due to localised hypersensitive areas In chronic lead poisoning purgatives and rough food were definitely harmful Atonic constipation often dated from irregularity in childhood aperients might have to be used to re educate the bowels, but *should be* discontinued as soon as possible He agreed that senna was the best drug for this purpose The commonest diseases which produced constipation were the febrile disturbances, diabetes, diseases of the heart, lungs, liver and kidneys, and disorders of the central nervous system which lowered the sensitiveness of the bowels Aperients were harmful where there had been dehydration, *or in polyuria* In patients with a urinary disorder, such as *infection by Bacillus coli*, they might cause an exacerbation Physostigmine and pituitary extract were often wrongly given for postoperative distension Purgatives were entirely valueless for dyschesia, and re education was the only remedy Small enemata were invaluable, with lavage of the large intestine Salines were useful for portal congestion and produced many cures of so called rheumatism by scouring the liver and gall bladder They should never be given to weakly persons or patients suffering from hæmorrhoids or other painful conditions of the rectum Castor oil had the advantage of producing a single evacuation with complete emptying and might be useful in spastic conditions Mercury was better given in divided doses and should always be followed by a saline To empty the bowels had little value in acute diseases and might do harm by exhausting the patient Normal persons varied greatly in their rhythm of evacuation A bed patient should be allowed to get up to go to the water closet as soon as possible

Dr F PARKES WEBER declared that the most rational treatment of habitual constipation in adults was properly prepared bran in suitable quantities with meals Its use could be discontinued suddenly without harm Constipation was not now so prevalent, but its former frequency must have indicated very wrong habits of diet or of education in infancy

Dr J B WRATHALL ROWE suggested that vitamin B_1 rather than roughage was the beneficial factor in bran and wholemeal bread Many Americans habitually took tablets of brewers yeast and praised it as a remedy for atonic constipation and dyschesia He asked whether in medieval times the Englishman had eaten five hundred times as much vitamin B_1 as he did today

Mr V ZACHARY COPE said that one of the movements of the proximal colon was antiperistalsis A lady of seventy had gangrene of the cæcum for which he had performed a short circuiting operation Until the colostomy had been closed formed and regular motions had passed out through it although there had been a clear passage through to the distal colon This had been due to antiperistalsis, which had been observed by Cannon worth as one of the common movements of the colon He pleaded against the wanton use of purgatives to which surgeons were persuaded The average layman and even the trained nurse believed that a purgative was necessary before and after operation Surgeons ought to fight that enormous body of opinion There was no need for a purgative after an ordinary abdominal operation —certainly not for several days A gentle enema would often relieve the large bowel In peritonitis purgatives might cause disaster by spreading the infection

Mr C W **Gordon Bryan** confessed that surgeons found it very difficult in practice to ensure that their orders against purgatives were carried out by the nursing staff, who were convinced that it was right to give them Continuous paraffin drinking might be responsible for chronic disorder of the colon He had seen that afternoon a baby of seven months who had been admitted for intussusception On the advice of a children's clinic it had been given paraffin twice a day from birth, a practice which might have had something to do with its symptoms. During the last few weeks it had also been fed on carrots and cabbage

Mr E. L **Pearce Gould** remarked that some people would go to great lengths to train their conditioned reflex. He described the complicated and invariable ritual performed after breakfast by an aged relative of his, who would never sleep a night out of his own house for fear it would be disturbed The ordinary person who for some reason did not move his bowels after breakfast could often take advantage of the mass movement which usually occurred after lunch or dinner The great difficulty in treating persons who had the purgative habit was to interest them in the training of the reflex without letting them replace one obsession by another

The **President** asked for justice for the pill and mentioned a doctor who had practised in his 87th year and had taken a rhubarb pill every night He thought it curious that the pill could be taken on retiring, when peristalsis was most quiet, and not earlier in the evening

Dr. L **Carlyle Lyon** spoke of the danger of taking purgatives during abdominal pains and converting a subacute appendix into an acute one The public should, he thought, be warned of the risk

Mr. J. E H **Roberts** said that the poor public had been abused by several speakers, but they were only following what they had been taught by the profession He believed that Sir Arthur Hurst had been responsible for the sale of paraffin in half-gallon bottles, and many other drugs had been recommended Until the doctors agreed the public should not be blamed. It was difficult for a surgeon to find out what went on in his own wards Hospital medical officers should see that their house-officers did not write on case-sheets, as a routine, a list of six or eight purgatives to be administered by the sister at her discretion.

Prof. J. **Plesch** asked for an explanation of the function of Bauhin's valve It closed by imposition of the under lip on the upper to prevent reflux into the ileum from the cæcum Its incompetence was associated with many disease conditions in which constipation was prominent In animals the under lip appeared to be larger than in man, and in hardly any animal was it possible to force fluid past the valve in the wrong direction Its incompetence could only be explained in man by assuming that it had an orbicular action Its failure might be a cause of constipation through depriving the mass movement of a fulcrum Flatulence as a complaint was less prevalent on the Continent than in England, perhaps because it was less socially obnoxious; constipation really seemed a far greater problem in England than abroad An explanation might be an unreasonable insistence upon a motion every day The use of agar had been based on a fallacy that it was a cellulose and so produced a natural loading of the bowel The vegetable mucilages were really hexoses. Pure agar had a constipating effect, and Adolf Schmidt had therefore added cascara to it He could not understand why laminaria, with its very high coefficient of swelling, was not used The swelling power of a colloid was proportionate to its adsorptive power, and it was almost certain that all the swelling bodies worked also as adsorbents If, however, an adsorbent was to be used, it would surely be better to choose one with a reversible action

Sir **Arthur Hurst**, in reply, doubted whether atonic constipation existed , for the tone of the colon, like that of the stomach, was hardly ever abnormal Taxol was a great favourite with the public and also, he was sorry to say, with the medical profession The intestinal extract and bile it was said to contain could have no action, nor could its lactic acid ferment by the time the patient needed it, and the agar it contained was practically negligible Experiments had shown that some part of a dose of agar could be absorbed. Bauhin's valve had no importance, for the work was all done by the ileocæcal sphincter, the absence of which after certain operations might explain an apparent retroperistalsis. The fluid contents of a tube would, in the absence of propulsion and resistance, move in either direction

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THE ALL TOO COMMON COLD

Writing in the clinical supplement of the *King's College Hospital Gazette* for January Mr Terence Cawthorne reviews and evaluates existing methods of treating the common cold, which he defines as an acute infection of the upper respiratory tract caused by an unknown virus and spread by overcrowding, under-ventilation or sudden variations in climate. In an interesting review of the current remedies he dismisses all drugs with the exception of the alkalis, the sulphanilamide group (which may turn out to be useful against secondary infection), and certain of the coal-tar preparations As local treatment he favours heat (inhalation of steam with friar's balsam), and tolerates mild astringents such as 0 5 per cent. ephedrine in normal saline. Nasal antiseptics are best avoided in the acutest stages "and it is probable that the numerous preparations that are in general use do more harm by irritation than good by disinfection," while "it is doubtful whether oily preparations do any good at all Secretion should be removed by gentle blowing of the *open* nose into a *paper* handkerchief; douches are mentioned only to be condemned. Turning to prevention, the most important measure, he thinks is to avoid contact with those already infected, who should go to bed in a warm room for two or three days Though such counsel is ideal rather than practicable in the modern world, it would nevertheless be practised far more often if there were more sense and less false heroism He urges every doctor to impress upon his patients the need for taking colds seriously—advice which may appear redundant to many an overworked practitioner at the present time who finds no stint of patients ready and anxious to discuss their colds with him at any hour of the day or night But if Mr. Cawthorne fails to get to the root of this complex matter he is not to be blamed. Avoidance of contact with infected persons is, after all of only secondary importance The primary problem is how to increase what for want of a better term, must still be called resistance to infection.

REVIEWS AND NOTICES OF BOOKS

The Pituitary Gland

An investigation of the most recent advances Edited by WALTER TIMME, ANGUS M FRANTZ, and CLARENCE C HARE. Baltimore Williams and Wilkins Co, London Baillière, Tindall and Cox 1938 Pp 764 *45s*

THIS is the seventeenth volume of the series of publications of the Association for Research in Nervous and Mental Disease, and contains the papers read before the association in December, 1936 The papers fall into three main sections anatomical, physiological, and clinical F Tilney discusses the phylogenetic features of the pituitary and demonstrates the constancy of its fundamental constituents and mode of development throughout the vertebrates G B Wislocki summarises his recent work on the vascular supply of the gland and reiterates the points upon which he and his co workers have differed from Popa and Fielding concerning the function of the hypophyseal portal system A useful summary of the available statistical data is provided by A Rasmussen, from which it appears that hardly anything is yet known of the weight curve of this gland during childhood and adolescence

While little advance has been made lately in our knowledge of the histology of the pars nervosa, much work has been devoted to its hormones, particularly the antidiuretic secretion Of special note is the experimental work on diabetes insipidus by S W Ranson, C Fisher, and W R Ingram, the protagonists of the theory that the hypothalamus governs the secretion of the pars nervosa, and that mechanical interruption of the supraoptico hypophyseal tract will cause diminished secretion of the antidiuretic hormone and hence polyuria It appears that polyuria always precedes polydipsia and diabetes insipidus does not become established in the absence of anterior lobe tissue This raises the vexed question as to the site of formation of the antidiuretic hormone Recent work gravitates again towards the view that it is elaborated in the pars nervosa and not in the pars intermedia, largely because the latter is absent in certain animals such as the whales These animals have been studied by E M K Geiling and L L Robbins, who find that the potency of the pars nervosa in the whale in respect of pressor, antidiuretic, and oxytocic substances is as great as that of bovine extracts The latest work offers no support to the theory, once widely held, that these posterior lobe hormones are secreted into the cerebrospinal fluid If Wislocki's conception of the vascular supply of the pituitary is correct, there is no circulatory connexion between the pars nervosa and the hypothalamus. Thus the Herring bodies, which until recently were regarded by many—possessed of more imagination than histological insight—as an outward and visible sign of the transport of posterior lobe secretions to the floor of the third ventricle, are now dismissed as artefacts

Much interest attaches to the controversy between H M Evans and O Riddle as to the existence of a specific growth hormone, the effects attributed to such a hormone being produced experimentally, according to Riddle, by prolactin Conflicting observations are perhaps in part due to the great difficulty in obtaining pure extracts from the anterior lobe for these experiments Collip, in the course of the discussion, expressed the opinion that the normal living gland probably produces only three hormones Thus, in his words one prosthetic group of a single protein molecule may represent the growth hormone activity, another prosthetic group the adrenotropic effect, and still another prolactin The term growth has undoubtedly been used far too loosely in this kind of work to denote increase of weight, whether due to obesity, retention of water, or to true growth An analysis of such changes is described in a useful article by M O Lee

In the clinical section informative articles will be found on röntgen therapy of pituitary tumours by C G Dyke and C C Hare, and on the surgical treatment of these tumours by G Horrax The general level of production of the volume is fully up to the standard of its predecessors

Clinical Studies in Lactation

By HAROLD WALLER, M B Camb, superintendent medical officer to the Royal College of St Katharine, Poplar; consulting physician to the British Hospital for Mothers and Babies, Woolwich London William Heinemann 1938 Pp 173 *7s 6d*

THOUGH in the recent controversy in the medical journals many different explanations were put forward to account for the decline in breast-feeding Dr Waller here seeks to explain the decline on what seem novel grounds The novelty of his views is perhaps due to the fact that they are based on what he has seen himself rather than on the usual textbook descriptions of the phenomena of lactation He has come to three main conclusions First, that lactation is largely a conditioned reflex, and that the ease with which the baby obtains the milk depends to some extent on its being actually expressed by the breast into the baby's mouth Secondly, that the engorgement of the breasts which is so often seen between the third and sixth days of the puerperium is abnormal and due to some obstruction in the outflow of the milk Finally that while this obstruction is sometimes due to malformation of the ducts, it is more often caused by inspissated secretion Dr Waller looks upon engorgement as one of the chief reasons for the failure of lactation and he lays down an antenatal and postnatal regime for its prevention His arguments and the cases illustrating them are impressive

The book deserves to be widely read, and should stimulate those in charge of maternity hospitals to inquire further into the new ideas it presents

Tuberculosis Among Children and Young Adults

(2nd ed) By J ARTHUR MYERS Ph D, M D F A C P, chief of medical staff and director of tuberculosis activities Lymanhurst Health Center, professor of preventive medicine, University of Minnesota Springfield Illinois Charles C Thomas 1938 Pp 401 $1 50

IN the eight years that have elapsed since the first appearance of this book many fresh facts have come to light about the baffling subject of tuberculosis in young people This has necessitated many alterations in the text and the addition of new sections principally those dealing with the reinfection type of pulmonary tuberculosis of young adults which bears an even closer relationship to the primary infections of childhood than was formerly believed Particularly valuable is the chapter discussing sensitisation and immunity and the clear distinction between them Dr Myers points out that sensitivity can be measured whereas we have no means of measuring immunity, and the acquisition of the one does not necessarily imply the acquisition of the other. This is often overlooked and was not even realised when Calmette began to use his B.C.G. vaccine Indeed, Dr. Myers still regards B C G vaccination as a huge experiment from which no final conclusions can be drawn for at least another decade

The book is divided into three parts dealing with the infant, the child and the young adult, and separate consideration is given to tuberculosis as a family disease and the danger of elderly people infecting the young. Dr. C A. Stewart writes on tuberculous pulmonary disease in childhood, while Dr. P. W. Giessler contributes an article on tuberculous disease of bones and joints Each chapter ends with a summary and bibliography, and the book as a whole is an excellent short account of a most difficult subject.

Pye's Surgical Handicraft

(11th ed.) Edited by Hamilton Bailey, F.R C S., surgeon to the Royal Northern Hospital, London. Bristol: John Wright and Sons; London: Simpkin Marshall. 1939. Pp. 512. 21s.

This old-established guide for house-surgeons has been entirely recast by the author, who has called to his aid twenty-eight experts in the subjects on which they write. In a general textbook for undergraduates multiple authorship has many drawbacks but it has none in a book of this kind It would be difficult to find a subject about which a house-surgeon might need information which is not included in this excellent compilation, and there is no padding and no redundancy. Pye's original work first appeared 54 years ago, since when it has been repeatedly revised and brought up to date, so that it has never been displaced in the affections of students and surgeons of all degrees of experience; in its new form it is likely to become the cherished possession of a new generation of active surgical practitioners.

Bacteriology

For medical students and practitioners (2nd ed) By A. D. Gardner, D.M., F R C S., professor of bacteriology, University of Oxford. London: Humphrey Milford, Oxford University Press. 1938. Pp. 274. 6s.

This little book sets out the elements of bacteriology in a handy and readable manner and at a reasonable price. The information given is reliable but the compression has perhaps been too great to develop the fundamentals of the subject adequately, and the author rightly recommends that it should be supplemented by reading from a larger textbook. It will prove particularly useful for students revising their bacteriology for their final and other examinations

A Concise Pharmacology

By F. G. Hobart, Ph.C., M.P S, head of the pharmaceutical department and lecturer in pharmaceutics at Westminster Hospital; and G. Melton, M.D., M.R.C.P., sometime medical registrar at the hospital. London: Leonard Hill. 1938. Pp. 171. *7s. 6d.*

This book sets out to present concisely but in sufficient detail the pharmacology of the more important drugs The subject is considered under broad headings such as anæsthetics and antiseptics, and the drugs coming into each section are arranged alphabetically. The sections are not all wisely chosen: for example, one is devoted to the aphrodisiacs, and contains a description of œstrin among a number of drugs of dubious efficacy. In this section, too, it is surprising to see prostate substance advised for enlarged prostate Most of the book is of a higher standard than these examples indicate and quite adequate for revision purposes. It contains, however, references to far too many unimportant drugs such as holarrhena, ammi visnaga, and adhota and the space they occupy would have been better allotted to more detailed descriptions of the essentials, for ether occupies only fifteen lines. A large number of proprietary remedies are listed and starred to distinguish them from official preparations, and the book is interleaved throughout with plain pages so that the student may add his own notes

Practical Microbiology and Public Health

For students of medicine, public health and general bacteriology. By William Barnard Sharp, S M, M.D., Ph D, professor of bacteriology and preventive medicine in the University of Texas London: Henry Kimpton. 1938. Pp. 492. 18s

This book represents a full and leisurely course of practical work in elementary bacteriology and parasitology which would provide the student with a sound knowledge of the subject Its later sections deal with the wider applications to administrative hygiene and include material not usually found in textbooks of bacteriology. The greater part of the book consists of working instructions but there is enough connecting material to give it cohesion A course such as is here set out would be too cut-and dried to be easily adapted to medical schools in general —the average teacher would want more scope for individual methods—but as a description of the practice of a specified medical school this book is admirable. Teachers will find in it many useful suggestions for the planning of their own practical courses

Clinical Obstetrics

By A. Lakshmanaswami Mudaliar, B A, M.D, F.C O.G, professor of obstetrics, Madras Medical College, University of Madras Edinburgh: Oliver and Boyd. 1938. Pp. 819. 27s

Prof Mudaliar has added another to the growing number of good manuals waiting to guide the student in obstetrics His book is written primarily for Indian students or those elsewhere in the tropics and gives special mention to the adverse effects of devitalising diseases and the late calls for medical aid The style is rather telegraphic, the points of each heading being listed and numbered, but this will appeal to the student who depends on an excellent memory and therefore wants his facts tabulated The directions for artificial feeding given seem to err towards undernourishment, for the baby does not have even equal parts of milk and water until three months and only a 2½ oz feed at four weeks The incidence of eclampsia is said to be the same in the tropics as elsewhere, and Prof Mudaliar deals with the subject thoroughly and on orthodox lines, except that he considers the possibility of discharging a recovered eclamptic home to await labour. He wisely warns junior practitioners not to attempt manipulations such as internal version when labour is advanced, although these can safely be carried out by the more experienced It seems unfortunate that three important subjects—blood transfusion, analgesia in labour and postnatal care—are relegated to appendices where not every reader will study them Their content certainly warrants their inclusion in the book itself This volume will, however, admirably fulfil its purpose of providing a sound introduction for students

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THE LANCET

LONDON SATURDAY FEBRUARY 18, 1939

IMMUNISATION WITH ARTIFICIAL ANTIGENS

A BRIEF letter to *Nature* from W F GOEBEL[1] *of the Rockefeller Institute opens* a new chapter in the advance of the organic chemist in immunology This movement, in which workers at the institute have played a major part, started along two lines that have since converged KARL LANDSTEINER and his colleagues, by linking simple chemical compounds to proteins, and injecting these synthetic antigens into rabbits, succeeded in producing antisera that showed a specificity dependent on the simple chemical compound that had been introduced into the antigen Thus they produced antigens and antibodies whose specificity depended on atoxyl, tartrates, benzoic acid, and other compounds of known constitution This enabled them to study the effect on immunological specificity of various changes in the structure of the chemical compounds concerned, of shifting a particular grouping from the ortho to the meta position in the benzene ring, of substituting a carboxyl by a sulphonic group, of inserting a methyl group, and so on As one result of these studies LANDSTEINER demonstrated that compounds which contained the specific determinant grouping, but which were not linked to proteins, might react specifically in the test tube with the homologous antisera, though they failed to stimulate antibody production when injected into rabbits To these partial antigens he gave the name of haptens

AVERY and HEIDELBERGER, starting from another angle, investigated the chemical nature of the capsular material that confers immunological specificity on the different types of pneumococci They found that the type specific substance consisted of a complex polysaccharide, different for each of the serological types From several of these types they succeeded in isolating the specific polysaccharides in a highly purified form, and they determined the products of hydrolysis, thus identifying the simpler constituents of which the complex polysaccharides were composed The complex polysaccharides were found to have the properties of LANDSTEINER's haptens They gave specific precipitation *in* the test-tube with the corresponding antisera produced in response to the injection of intact pneumococci, *but* they had lost the power of stimulating *antibody production* themselves

These two lines of work converged when it was shown that, by linking these purified polysaccharides to proteins by the method devised by LANDSTEINER, it was possible to restore their full antigenicity, so that, by injecting the protein polysaccharide compounds into rabbits, specific antisera would be produced which would react either with the purified capsular polysaccharide or with intact pneumococci of the corresponding type The advance now recorded by GOEBEL is the demonstration that, in order to obtain an effective antigen, it is not necessary to include the whole complex polysaccharide in its unaltered form, for a simpler constituent containing the essential chemical groups in their specific pattern will suffice Thus in the particular case of the type III pneumococcus an *antigen was prepared by linking to horse globulin* the glucoside of cellobiuronic acid, the acid that forms the unit out of which the complex type III polysaccharide is constituted The serum obtained by the injection of this synthetic antigen into rabbits precipitates the complex type III polysaccharide, agglutinates type III pneumococci, induces the characteristic capsular swelling, and confers passive protection on mice Animals injected with this artificial cellobiuronic acid antigen themselves acquire an active immunity against type III pneumococci A point of additional importance is that antisera prepared against this artificial antigen protect mice against type II and type VIII pneumococci, as well as against type III It is known that there is an antigenic relationship between types III and VIII, so that this cross-protection should not, perhaps, be credited with too much significance, but there is clearly a suggestion that antigens prepared with the unit constituents of complex polysaccharides may have a wider range of reactivity than those containing the complex polysaccharides in their unaltered form If this is so, the induction of an effective immunity against a bacterial species containing a large number of different serological types may have been brought a little nearer achievement

THE LOST SWAB

THE Court of Appeal delivered an important judgment last Friday *when directing that there* should be a new trial of the action in which Mrs Mahon had been awarded damages at Manchester assizes against Mr R P Osborne, F R C S, of Drinkwater Park Hospital, Prestwich It will be recalled that this was a claim alleging negligence against a surgeon in that a swab had been left in a patient's body The arguments in the Court of Appeal were summarised in this column recently (*Lancet*, Jan 28, p 242) The decision of the Court of Appeal is a majority decision of two judges to one, and mention was made of a *further* appeal to the House of Lords The matter is so vital to surgeons that it may be hoped that the courts will leave them in no doubt how they stand The value of the majority decision is that the lords justices have laid down that at any rate the leaving of a swab in the patient's body is not ipso facto negligence on the part of the surgeon

Thomas Mahon, son of the plaintiff, entered the hospital for an emergency operation for a perforated duodenal ulcer He arrived at 1 45 A M and the operation began within an hour. Certain difficulties were encountered through his taking the anæsthetic badly. Mr Osborne, who was described in the evidence as a most careful and skilful surgeon, removed all the swabs of which he was aware. He asked the theatre sister whether all the swabs were accounted for; she replied in the affirmative. The surgeon, it was said, could have searched the whole of the abdomen to make certain that no swab had been overlooked; but it would have been wrong for him to cause further shock to the patient by doing so. A swab was left in Mahon's body and he died after a second operation. A special jury found a verdict against the surgeon, but added a rider that he was working in difficult circumstances in performing the operation.

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[1] Goebel W F, *Nature Lond* Jan 14 1939 p 77

Lord Justice **Scott**, who presided in the Court of Appeal, observed that the plaintiff's case had been presented as one of *res ipsa loquitur*. To put this principle in an elementary form for persons less versed in the law than the experts who listened in the court, one may mention the stock illustration alliteratively fixed in the mind of law students as the case of Byrne *v.* Boadle or the Bounding Barrel. A man is walking along a street pavement when a barrel suddenly leaps forth from a doorway and injures him. Barrels cannot behave like this unless someone has been at fault, *res ipsa loquitur*—the fact itself is eloquent. Mrs. Mahon's counsel presumably relied on the principle somewhat in the following fashion: the surgeon cuts open a patient and inserts foreign bodies inside him. the man who inserts these things is responsible for pulling them out again. swabs do not exist inside human beings unless there has been carelessness in leaving them there. Lord Justice **Scott** held that the principle *res ipsa loquitur* could not apply generally in actions of negligence against a surgeon for leaving a swab behind, though it was conceivable that in certain circumstances a presumption of negligence might be created. Before the principle could apply to the surgeon, there must be two presumptions of fact. first it must be presumed that the event was due to a breach by somebody of the duty of care towards the patient, and secondly it must be presumed that the surgeon was that somebody. The nature of abdominal operations, said the lord justice, varies widely, and many considerations arise. In the present case a state of things was presented of which the ordinary experience of mankind knew nothing; it was therefore unsafe to beg the question of proof. After Lord Justice **MacKinnon** had concurred, Lord Justice **Goddard** delivered a dissenting judgment. An appeal from the verdict of a jury is not allowed merely because the appellate tribunal takes a different view of the facts from the view taken by the jury. The jury's verdict is not to be upset unless it is so fanciful that it ought never to have been given. If there is some evidence on which the verdict could have been reached, the verdict may stand. Lord Justice **Goddard** thought that there was some evidence in the facts of this particular case on which a jury could conceivably have found as this jury did find, and that therefore the appeal should be dismissed.

Perhaps this minority judgment, depending on particular bits of evidence, is not of much general significance. Surgeons will be glad to have Lord Justice **Scott**'s opinion that some positive evidence of neglect is necessary before the plaintiff can succeed. It may be that the full story of an operation will disclose facts sufficiently indicative of want of skill or care to entitle a jury to find neglect of duty towards the patient. Expert evidence may be necessary, but "to treat the maxim *res ipsa loquitur* as applying in every case where a swab is left in a patient seems to be an error of law." It is disappointing for Mr. Osborne that the majority opinions did not end in judgment being given in his favour on the ground that there was no evidence of his being at fault. The decision that there must be a new trial leaves him with a great deal of anxiety and expense to be faced a second time. The views of the Court of Appeal, however, permit him to face the further litigation at better advantage.

DEEPER DIVING

Since Augustus Siebe invented the first practical diving suit in 1819 many improvements have been introduced, but still the ordinary diving suit consists of an incompressible metal helmet and breast-plate and a flexible waterproof covering for the rest of the body. When submerged, the diver is connected with the surface by a life-line, a telephone cable, and an air hose, all of which are liable to endanger his life by getting entangled in wreckage or rocks. Though the entangled diver can cut his life-line and telephone, he can only cut his air hose if he proposes to make a rapid ascent from comparatively shallow depths. Even then he will probably suffer from caisson disease. Nor are these dangers purely theoretical, for it was reported by G. R. W. French in 1916 that during salvage operations on the sunken submarine F4 the divers were fouled in the wreck in almost 20 per cent. of the dives.

Caisson disease is not as easily avoidable as is generally supposed. The explanation of the cause given by Paul Bert in 1878—namely, the formation of nitrogen bubbles during too sudden decompression—has led to the use of slow decompression according to the tables of Boycott, Damant, and Haldane (1908), and the incidence of the trouble has much diminished. But caisson disease has not been eliminated, and the time lost in preventing it is in any case a serious factor, a diver who spends half an hour at a depth of 250 feet has to spend 3½ hours in decompressing. According to Shaw[1] the partial failure of this method is due to the incompleteness of Bert's explanation: erythrocyte agglutination is probably the primary disturbance, though the formation of bubbles is a serious complication, and End[3] has observed that alkalinisation has a favourable influence. Even apart from caisson disease however there are other dangers in diving, and not the least of these is "squeeze"

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[1] Shaw, L. A., *J. industr. Hyg.* 1936, 18, 486.
[2] Swindle, P. F., *Amer. J. Physiol.* 1937, 120, 59.
[3] End, E., *J. industr. Hyg.* 1938, 20, 513.

A descent of about 2 feet increases the total pressure on the diver's body by about a ton It is clear that if the pumps fail to maintain an increased pressure within the suit as the diver descends, as may happen if he falls suddenly under water, air will be squeezed from the compressible suit into the incompressible helmet In extreme cases the man himself may be moulded into his own helmet To these dangers of even moderate depths may be added the mental changes occasionally noted Quickness of decision may be lost and it is recorded that a man once attempted to unscrew his face-plate, perhaps because of claustrophobia Attempts to explain these changes on the supposition that nitrogen acting in accordance with the Meyer-Overton law, behaves as a narcotic under pressure[4] have not been confirmed

In such circumstances it is hardly surprising that efforts have often been made to design a safer diving suit, and in this attempt Mr Nohl of Milwaukee has apparently succeeded (End[3]) The Nohl suit is self-contained, the air being carried in steel cylinders which take the place of the ordinary back-weights, there are thus no pumps or trailing hoses, and the wearer has a much increased freedom of movement By carrying one cylinder of air and two of oxygen, and expiring into a soda-lime absorber, he can regulate as he descends not only the pressure within his suit but the composition of the air he breathes Normally he is equipped with a life-line and a telephone cable, but, should he find it advisable to abandon these, he can rise to the surface in an orderly manner, stopping at intervals for decompression Another recent improvement has been the substitution for air of helium-oxygen mixtures which allow decompression to take place in something between a third and a twenty-third of the usual time (End 1937) The Nohl suit makes possible the use of such mixtures and simplifies in other ingenious ways the tedious process of decompression With these new methods Great Britain's diving record of 344 feet has been beaten with ease by Mr Nohl, who has descended to a depth of 420 feet in Lake Michigan (Indeed there seemed to be no reason to stop at this point apart from the inconvenient fact that he had reached the bottom, where he remained for 9 minutes) The ascent took only 118 minutes, with longer pauses for decompression at thirty feet (pause of 22 minutes), twenty feet (28 minutes), and ten feet (46 minutes) At each stage Mr Nohl emptied his diving suit and refilled it with pure oxygen, as advised by Shaw[1] and Behnke[6] There were no mechanical faults or leakage of water, and the diver's mental and physical condition were excellent throughout the experiment

ANNOTATIONS

AN EPIDEMIC OF TOXIC POLYNEURITIS

An outbreak of polyneuritis of obscure origin in Durban, South Africa, and district in the autumn of 1937 presented as pretty a problem of diagnosis as could be hoped for by the epidemiologist[5] In all there were 41 cases scattered in ones and twos, chiefly at four foci in Durban and along the Natal coast The typical story was that about twelve days after a mild gastro enteritis painful stiffness or cramp began in the calf muscles and was replaced by paresis or paralysis of the muscles below the knees Involvement of the intrinsic muscles of the hands usually followed, so that fine movements could not be performed Occasionally the onset of paralysis was so sudden that patients either fell down in the street or were unable to stand on getting out of bed in the morning This flaccid paralysis was very slow in clearing up and in many cases recovery is still not complete The urine, blood and cerebrospinal fluid showed no significant changes and there was no rise of temperature or constitutional disturbance Both Indians and Zulus were affected, as well as the white population, and there was no special class or age incidence the ratio of males to females was 9 to 1 The outbreak was at first thought to be one of atypical poliomyelitis, since it was argued that "a toxic food element could hardly affect people of all races and those with very dissimilar diets, unless it were operating through some such common vehicle as water, flour, sugar or tea, in which case a great number of persons would be likely to be affected"

News was next received from London that a similar outbreak had arisen among 27 out of the 34 passengers and crew of a French ship which had left Durban for Dunkirk via London on Oct 2 The first cases on the ship began on Oct 28, which would given an apparent incubation period of at least 26 days on the assumption that infection had taken place in Durban Analyses of the provisions on the ship were made in Paris and no trace of arsenic was found Meanwhile attention had been drawn to the similarity of this outbreak with the serious epidemic of paralysis which had begun in Oklahoma City in the United States in 1930 and had been traced to poisoning by tri ortho cresyl phosphate through the vehicle of essence of ginger—the so called jake paralysis[7] There was, however, no question of ginger essence being the toxic substance in the Durban outbreak but eventually it was found that all the Indian and Zulu patients were connected with European kitchens, and that cooking oil said to be of a particular brand was common to the four principal foci The Zulus affected had been in the habit of eating curry left over from the European meals although at first sight their diet did not reveal anything which had been cooked in this oil After initial failure, it was simultaneously reported by the government analyst at Durban and from the Ministry of Health in London that cresylic compounds had been found in soya bean oil used for cooking in South Africa and on board the French ship, the *Jean L D* how the oil came to be contaminated remains a mystery A controlled experiment on cockerels in South Africa showed that the suspected oil was capable of producing paralysis of the same type as in the human cases

The possibility of cases of paralysis of obscure origin being due to poisoning by tri-ortho cresyl phosphate must be borne in mind in diagnosis

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[4] Behnke A R Thomson, R M, and Motley, E P *Amer J Physiol* 1935, 110 5[illegible]5

[5] Sampson B I, *Bull Off int Hyg publ* 1938 30 2601 Note presented by Dr J G Stock the delegate for the Union of South Africa

[6] Behnke and Shaw *U S nav med Bull* 1937, 35 61

[7] *Publ Hlth Rep Wash* [illegible]

Tri-cresyl phosphate is a colourless, almost odourless, and tasteless oily substance, and is not easily removed from the interior of containers, since it is insoluble in water and not volatile in steam It is largely employed as a plasticiser for cellulose lacquers and varnishes and may also be found in abortifacient pills Users of second-hand containers should take care that their cleansing processes are sufficient to ensure the removal of such substances

THROMBOSIS AFTER HERNIOTOMY

OBSERVATIONS of postoperative thrombosis and embolism have failed to establish a direct causal relationship between the operation and the sequel. One of the correlations arising from such a relationship, did it exist, has been examined by Bergquist,[1] who recorded the side of the operation and the side of the thrombosis in the lower limb in 2900 herniotomies In the whole series there were 88 examples of thrombosis and embolism, of which 35 had a thrombosis on the same side as the operation, 23 on the opposite side, and 30 had no recognised local *thrombosis The author concludes that this difference* is not significant The series was subdivided according to sex and type of hernia, and the largest subdivision consisted of 1309 operations for reducible right inguinal hernia in males, among which were 12 cases of right-sided and 12 of left-sided thrombosis, and 15 cases of embolism without recognised thrombosis Nearly 3 per cent of thrombosis and embolism is a high incidence for a simple operation, the more so as more than a third of the patients were under twenty. But a careful search for these complications always reveals more than are usually recognised, and the high incidence reported by some observers is probably more general than less careful records suggest The difficulty of diagnosis is shown by the number of emboli that occur when thrombosis has escaped detection. The problem that Bergquist has studied is complicated by two observations: first, that in fatal cases of embolism the thrombosis is more commonly found on the right side, and secondly, that in all cases of recognised thrombosis the incidence is a little higher on the left than the right There appears therefore to be a greater risk of embolism from a right-sided than from a left-sided embolism. Since hernia is about twice as common on the right side as on the left, a large series should show a slight preponderance of contralateral thrombosis rather than of ipsilateral as in Bergquist's series It is doubtful, however, whether this consideration invalidates the author's conclusion that the evidence for a correlation between the side of operation and that of thrombosis is not statistically significant

SUPERVOLTAGE X RADIATION

THE possibility that an improvement in the results of X-ray therapy may be expected as soon as more apparatus for the production of supervoltage X rays becomes available interests all who have to decide the policy of centres where cancer is treated Lately Schmitz, Schmitz, and Sheehan,[2] of Chicago, have studied the effects of radiation at 800 kV on cancer of the uterine cervix Repeated punch biopsies were taken from the cervix at stated intervals during treatment, and both macroscopic and microscopic changes were observed The radiation was produced at 800 kV peak at 10 mA, with a filter equivalent to 10 mm of copper, a focal skin distance of 70 or 86 cm, and a half-value layer of 8 2 mm of copper The output was 44 röntgens per min measured with backscatter Anterior and posterior fields were used and 4000 r was delivered to the skin in ten fractions at 48-hour intervals. This gave a dose of 4000 r throughout the true pelvis in an overall time of 28 days *Examination of the* specimens obtained after receiving doses of 300, 1000, 2000, 3000, and 4000 r showed the familiar changes resulting from radiation, and an interesting attempt is made to differentiate between the reaction of those cells which tend to cornify and those which do not The former when degenerate no longer take up dyes, and appear pale with giant nuclei and karyolysis The latter are deeply stained with pyknotic nuclei, and form large squames without nuclei These effects increase with dose, but the changes are not uniform, and again histological appearances cannot be accepted as a guide to probable lethal dosage The authors suggest that half of the similar cases treated in another series by this method were clinically cured after four years, but they do not state whether the supplementary radium therapy that they mention had been given, *nor are we told the number of cases in different* clinical stages In their present series, half the cases showed definite recurrence apparently within a short time—a result which is not surprising seeing that 4000 r in 28 days is probably a sublethal dose The clinical value of this method is likely to lie in the ease with which a supplementary dose of 4000 r could be added at the lateral wall of the pelvis, where with the usual methods of radium therapy dosage is necessarily low

VACCINIA PROPAGATED IN HEN'S EGGS

THE desirability of obtaining vaccine lymph free from extraneous infective agents has prompted many attempts to propagate the virus in sterile culture media The freedom of calf-lymph from bacteria has been to some extent achieved by storage and the addition of glycerol, but the varying degree of contamination of different samples of lymph and the fact that in storage the virus deteriorates, though less rapidly than the bacteria, make it highly desirable to obtain pure cultures of the virus

In 1931 Rivers[1] described a method of growing vaccinia on minced chick embryo with Tyrode solution in flasks In the following year Goodpasture, Woodruff, and Buddingh[2] were successful in infecting the embryonic membrane of the incubated hen's egg with the virus of vaccinia, and they obtained an initial inoculum free from bacteria by passage through the testis of the rabbit Stevenson and Butler[3] working at the Government Lymph Establishment made their first observations on culture in eggs in 1933, and they have now[4] published the details of their methods and the results of their later work. They describe the characters of the cultured virus, its slight lethal action on the embryo, its potency for infecting rabbits, its harmlessness, and its stability during passage in eggs They have fully studied the keeping properties of the vaccine pulp and the technique of preservation Some workers have found that vaccinia strains grown in chick embryos cause hæmorrhagic and necrotic lesions on the skin of mammals but Stevenson and Butler are convinced that the property is mainly confined to strains which have been passaged through the testis They lay great stress on the differences between strains of vaccinia virus and on the importance of using a purely dermal strain as the source for chick membrane culture. They obtained the initial virus free from bacteria by inoculating a good dermal strain intradermally on a rabbit and collecting the virus from the under surface of the skin. They used the skin of young rabbits for titrating the virus, for the chick membrane in eggs was too variable as a culture medium for this purpose. The lethal property of their strain for chick embryo was very low. Eggs inoculated about the fourteenth day of incubation were opened for removal of the culture four days later and the embryo was seldom dead; live and healthy chicks were occasionally hatched out of the infected eggs. The potency of their virus varied little from the *2nd to the 105th* egg passage. They reproduce photographs of the cultures on chick membranes showing papules and plaques of vaccinia sometimes as large as half a crown.

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[1] Bergquist, B, *Acta chir scand* 1938, 81, 555

[2] Schmitz, H, Schmitz H E, and Sheehan, J F., *J Amer med Ass* Jan 7, 1939, p 17

[1] Rivers, T M, *J exp Med* 1931, 54, 431

[2] Goodpasture E W Woodruff, A M, and Buddingh, G J, *Amer J Path* 1932, 8, 271

[3] Stevenson, W D H, and Butler, G G, *Lancet*, 1933, 2, 228

[4] Stevenson and Butler, *Rep publ Hlth med Subj*, Lond 1939, No 87

Stevenson and Butler are satisfied with the trials of their chick membrane virus on human beings and quote the work of Goodpasture and Buddingh[5] who performed 936 primary vaccinations with 93·6 per cent. takes and no complications. They believe that the use of chick membrane vaccine derived from their dermal strain will be as safe as fully purified calf lymph, but they think that it should first be used on small numbers by experienced vaccinators who should keep careful records. They maintain that it is a great advantage that this lymph is free from bacteria when collected and that its production would entail much less work and expense than calf lymph.

SULPHANILAMIDE CYANOSIS

THE commonest toxic effect of the sulphonamide compounds, apart from such minor ones as nausea and depression, is cyanosis. It has been very variously regarded in the past, some viewing it with alarm and others ignoring it altogether; but today, except in patients already subject to anoxæmia from some other cause, it is considered an often necessary evil and no bar to further treatment. The mechanism by which this cyanosis is produced is by no means fully understood, but there seem to be three different causes. The first is absorption by the red cells of a coloured derivative of sulphanilamide; the second and third are methæmoglobinæmia and sulphæmoglobinæmia, the former resulting from the first stage of a process that in the presence of H_2S *may* go on to the establishment of the latter. Hartmann, Perley and Barnett[6] have made an extensive study of methæmoglobinæmia following the administration of sulphanilamide. They found some degree of it in almost every patient receiving the drug, but the rate of its appearance and its amount varied widely and inexplicably; a scatter diagram plotting the methæmoglobin and sulphanilamide concentrations in the blood of a number of patients shows a *correlation between* them which is far from constant. In individual patients on the other hand there was such correlation at different times, and it was noted that those forming a disproportionately large amount *of* methæmoglobin were often those with severe infection and high fever. The same investigators have also studied the treatment of methæmoglobinæmia with methylene blue, a procedure originally suggested by W. B. Wendel (in 1937) although based on previous observations by F. Hauschild and others. Methylene blue has been shown greatly to accelerate the reconversion of methæmoglobin to hæmoglobin in poisoning by various aniline derivatives. Its effect in methæmoglobinæmia due to sulphanilamide is dramatic, the cyanosis disappearing within half an hour when a dose of 1–2 mg. of the dye per kilogramme of body weight is given intravenously; but the formation of methæmoglobin is soon resumed, and the status quo is reached in about 24 hours. Thus a single dose gives only temporary relief—though it also gives the opportunity of observing whether the cyanosis is due to methæmoglobinæmia and not due to some other cause—but the methæmoglobin level can be kept down by continuing administration of the dye by the mouth, or prevented from ever rising unduly if methylene blue is given together with sulphanilamide from the start of treatment. The dye itself is believed to be harmless in the doses required, and there is no indication that it interferes in any way with the therapeutic action of sulphanilamide.

HOW FAR CANCER IS NOW TREATED ADEQUATELY

IN seeking parliamentary powers to secure the extension of the present facilities for the treatment of patients suffering from cancer, Mr. Walter Elliot has no doubt been influenced by the figures contained in a report published by the Ministry of Health today.[1] Its author, Dr. Sholto Mackenzie, has tried by means of a sampling inquiry to assess the extent to which cancer patients receive treatment under present conditions, the Radium Commission having concluded, in its seventh annual report, that the facilities already provided or contemplated are inadequate. Estimates made by the Ministry confirmed this view but it was thought well to attempt a more direct assessment. For this purpose eleven county boroughs and eight county areas were selected, the former including some towns with radium centres, others with progressive ideas and modern hospitals, and some smaller country towns, the latter including rural, industrial and dormitory types. By collaboration with the medical officers of health histories were obtained of as many persons as possible who were certified as having died from cancer during the first six months of 1936. By such means 3303 histories were secured, and these appear to be properly representative of all cancer deaths in England and Wales at that date, judged by the distribution of the sites involved, the sex ratio of the *mortality*, and the average age at death. On the other hand the inquiry deals only with the dead—i.e., the failures—so that for those sites which can be successfully treated the picture may well be overdrawn.

Of the 3303 patients, as many as 2420, or 73 per cent., were assessed as untreated in spite of the somewhat generous definition of treatment—*for* example all patients who received radiation were recorded as treated although the aim may sometimes have been merely palliative. This large body of untreated persons may be divided into three broad groups—namely, 513 patients who suffered *from* cancer of organs for which treatment, even under the most favourable conditions, is not possible (e.g., pancreas, lung and œsophagus); 1604 for whom treatment is theoretically practicable provided they attend *for advice at a sufficiently early stage* (e.g., stomach, intestine and larynx); and 303 particularly amenable to treatment (e.g., uterus, breast, and skin). Taking the last two groups together as indicative of the field in which extended facilities for treatment might operate, it is found that of these 1907 untreated persons, 418 (22 per cent) were not treated because they were virtually moribund when they first sought advice; 169 (9 per cent) because they suffered from concomitant disease; 426 (22 per cent) on account, probably, of their advanced age, 657 (34 per cent) because apparently when first seen their condition was too advanced for treatment; and the remaining 237 (12 per cent) because they refused treatment Even with the treatable organs 16 per cent of the patients were in too advanced a stage of the disease for treatment, but the limitation of the sample to the dead may give too gloomy a picture here Special study is made of 283 patients in the most treatable group, that is, with cancer of the breast, uterus, skin, tongue and mouth parts, who resided in eight of the areas of investigation. Only a little more than a quarter of them had been treated in hospitals known to have facilities for radiation treatment, another 17 per cent in hospitals with some radiation facilities, and 11 per cent in hospitals with no such facilities For nearly one patient in five in this important group no reason for lack of treatment was given except the advanced stage of the disease, and it is probable that they would all have been suitable for treatment had they sought it earlier.

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[5] Goodpasture, Buddingh, Richardson L., and Anderson K. Amer. *J. Hyg.* 1935, 21, 319.

[6] Hartmann A. F., Perley A. M. and Barnett H. L. *J. clin. Invest.* 1938, 17, 699.

[1] Cancer. An Inquiry into the extent to which patients receive treatment. By the Hon. Sholto Mackenzie, M.D. H.M. Stationery Office. 1939. Pp. 41. 9d.

From such figures Sir Arthur MacNalty deduced, in his preface to the report, two guiding principles, relating mainly to those organs in which treatment has made much progress in recent years. "They consist," he says, "in attempting to secure not only that more patients receive treatment, but also more patients receive treatment at an earlier stage, when it is likely to be more effective An attempt to fulfil these needs connotes wider provision of facilities for treatment and for early diagnosis" To what extent such wider provision may be effective remains to be seen It can hardly operate within the 25 per cent. of the patients who, according to this investigation, refuse treatment altogether or are debarred treatment on the grounds of age or the presence of concomitant disease Its success must lie rather in the large proportion seen too late for effective treatment or seen only in inadequately equipped hospitals The former must denote that with wider facilities patients will tend to come for treatment at an earlier stage of disease, and the present inquiry provides no evidence on that point. The latter clearly raises the question of the wider provision not only of the means of treatment, surgical or radiological, but also of personnel fully competent to use it effectively and to adapt their methods to any and every development in our knowledge. Dr. Mackenzie's careful report undoubtedly clears the ground.

CONSTRUCTIVE A.R.P.

PERHAPS there have never been so many opportunities for making the best of a bad job as there are today. Ugly necessity is forcing us to spend a great deal of money on preparations for calamity; but wise planning will allow us to ensure that some of it, at least, is used to make positive contributions to the nation's health and happiness The Government's proposal to finance a £1,000,000 scheme to build camps for school-children is an example of this kind of constructive defence The camps will be a valuable supplement to any evacuation scheme in war-time, while in peace-time they would serve as school camps for town children and as holiday centres for young workers; their construction will give employment to many. In a written reply to a question in the House of Commons on Feb 13 Sir John Anderson announced that it is proposed to build 50 of these camps, each to accommodate 350 children They will be composed of huts which will be supplied with central heating, water, electricity, and main drainage. There will also be at each camp a common dining room, recreation-rooms, and a number of covered shelters. It is proposed to set up two public corporations, one for England and Wales and one for Scotland, to administer the scheme They will be expected to recover 50 per cent of the capital and to meet all maintenance charges from peace-time letting of the camps, but it is emphasised that the camps will not be run to make a profit.

POSTOPERATIVE CIRCULATORY FAILURE

FACED with postoperative collapse our first concern must be to decide whether the failure of circulation is peripheral or cardiac or both. The importance of this distinction is by no means always appreciated and unexpected deaths from postoperative shock are too apt to be put down to myocardial insufficiency though there is no real evidence of it As Wood[1] remarked in a recent analysis of the cardiac complications of major abdominal surgery, in the absence of an autopsy it is often difficult to convince the surgeon that the heart is innocent Sir Hugh Devine emphasises the value of careful preoperative examination of the cardiovascular system, for the probabilities in diagnosis are very different in a patient who came to operation with a normal circulatory mechanism and in one who was suffering from some "crippling" of the heart. Devine would like every patient who is to undergo a serious operation to have an electrocardiographic and radiographic examination, for he regards coronary sclerosis and myocardial degeneration which may be missed on ordinary clinical examination as of particularly bad import The essential difference between cardiac and peripheral circulatory failure is that in the former the venous pressure is raised and in the latter it is depressed. The arterial blood pressure is not much affected in the early stages of heart-failure, except in the more sudden catastrophe whereas in peripheral failure there is always an obvious fall The patient with cardiac failure usually wants to sit up in bed, and the arm and neck veins are noticeably distended. The shocked patient on the other hand sinks down in the bed, and the veins are collapsed The most probable causes of very sudden circulatory distress are pulmonary embolism and myocardial infarction A gradual failure is more likely to be a manifestation of surgical shock, hæmorrhage, or an intra-abdominal complication such as peritonitis or ileus. Primary postoperative shock—the type that develops during the course of an operation—is to a great extent preventable The amount of shock produced depends largely on the technique of the surgeon and the type of anæsthetic given, and the administration of fluid before and during the operation may anticipate and obviate mishaps. The collapse that happens hours later is supposed to have a toxic rather than a neurogenic origin In such cases, Devine thinks, there is evidence to warrant the use of Sympatol, a synthetic adrenaline that is said to have a more prolonged effect than ordinary adrenaline and can be given intravenously in larger doses But the first essential is to give fluids intravenously or rectally by the drip method until all signs of dehydration have disappeared.

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[1] Wood, P, *Proc. R Soc Med* 1938, 31, 676
[2] Devine, H, *Aust N Z J Surg* 1938, 8, 143

For true cardiac failure Coramine, Cardiazol, caffeine and digitalin are the usual drugs, and one or other may be given with the fluids when it is felt that a crippled heart is adding to the circulatory embarrassment of surgical shock For various mechanical reasons an abdominal operation may be dangerous for a patient with an impaired circulation The peristaltic and pendulum movements of the intestines normally aid the return of blood to the right side of the heart, and these may stop altogether after a serious abdominal operation Diaphragmatic action may also be impeded by upper abdominal operations and inflammations, and bandaging of the lower ribs may embarrass chest movements Physicians are constantly impressing on surgeons, however, that the most serious operation will not cause failure in a healthy heart, and that even a diseased heart stands up to surgical strain remarkably well.

STORED BLOOD FOR TRANSFUSION

BLOOD has for some years been stored for purposes of transfusion in Russia, Spain and America, but until recently only fresh blood has been used in this country The international crisis last September, however, stimulated considerable interest in the possibilities of this method On the whole human placentas have *not found favour* here as a source of blood though their use is advocated by some workers such as Howkins and Brewer,[1] Page, Seager and Ward,[2] and Halbrecht[3] Cadaver blood has not been studied, but it is clear from articles in our present issue and from a discussion in the section of therapeutics and pharmacology of the Royal Society of Medicine on Feb 14 that blood withdrawn from adult donors may be stored with little trouble and is suitable for all types of patient Such stored blood has been given with satisfactory therapeutic results, as evidenced by rise in red cells and *hæmoglobin and* improvement in general condition, in a wide variety of conditions including postoperative shock, anæmias due to chronic and acute hæmorrhage, and various blood diseases Dr G A Elliott and his colleagues, who gave 50 such transfusions, and Dr E M C Biddle, who has given 150, believe that reactions are less common after stored than after *fresh blood* It seems possible that the rather high reaction rate reported from Spain by R S Saxton was due to defective storage dependent on war conditions

The majority of workers in the past have used sodium citrate as a preservative *at a final concentration* of about 0 38 per cent, but both Elliott and his colleagues and Dr C R Boland *advocate the use of* I H T, a solution devised by the Moscow Institute of Hæmatology, which is mixed with the blood in equal quantities Such high dilution *seems an advantage* since all stored blood tends to become sticky Glucose citrate, and citrate in normal saline may also be used Temperatures between 1° and 7° C are satisfactory for storage but blood must under no circumstances be frozen because this results in complete hæmolysis It is essential also to avoid agitation of the blood as far as possible, a point which Saxton thought an objection to the special flask used in Spain There the blood was stored with a high pressure of filtered air, which facilitated the administration of the blood but was liable in Saxton's opinion to lead to less satisfactory preservation Blood can be stored for a fortnight with no loss of therapeutic value and may be kept for as long as 31 days but generally it should not be used when older than three weeks Administration may be carried out by gravity pressure or the drip method as long as the blood is filtered before use Apart from questions of apparatus and technique it is clear that the possibilities of stored blood have been too long neglected in this country An organisation of blood banks will in future be an essential part of peace time as well as of war time medicine, so that blood already tested for sterility and Wassermann reaction will always be immediately available Such a service is far more satisfactory for the donors, who can come up to give blood at a time convenient to themselves instead of being snatched from bed or work by an urgent call, and is often life saving for the patient with sudden severe hæmorrhage If the magnificent blood transfusion centres in Republican Spain, where blood was withdrawn, tested, and prepared for use, were possible there in time of war they should be equally possible in England in times of peace

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[1] Howkins J and Brewer, H F, *Lancet* Jan 21, p 132

[2] Page A P M, Seager K G, and Ward, L M, *Ibid* Jan 28, p 200

[3] Halbrecht J *Ibid* p 202

We regret to announce the death on Wednesday morning of Mr G J JENKINS, ear, nose and throat surgeon to Lambeth and St Charles' Hospitals

Prof W SCHULEMANN of the pharmacological institute of the University of Bonn will lecture on chemotherapy at the Wellcome Research Institution Euston Road, London, N W 1, on March 7, 8, and 9 at 5 30 P M and Dr W E GYE, F R S, director of the Imperial Cancer Research Fund, will speak on the present position of the cancer problem at St Thomas's Hospital medical school on March 20, at 5 P M These lectures are being held under the auspices of the University of London, and all who are interested are invited to attend

Mr CEDRIC LANE-ROBERTS will deliver the Hunterian oration to the Hunterian Society at the Mansion House, London, E C 4, on Monday, Feb 27, at 9 P M He will make a plea for the woman in gynæcology and obstetrics

Major General H F M DOUGLAS, A M S (retd), who died at Droitwich on Tuesday at the age of 63, was awarded the Victoria Cross in 1899 at Magersfontein when, although himself wounded, he advanced under heavy fire to give first aid to many who had been hit and were lying helpless in the open Later he became deputy director of medical services for the Scottish Command in Edinburgh

Mr Michael Kineally, teacher at Ring College co Waterford, is claiming damages in Dublin High Court on the plea that his daughter died from tuberculosis after being inoculated against diphtheria by Dr D J McCarthy of Dungarvan with T A F prepared by the Wellcome Foundation On Tuesday Dr McCarthy was dismissed from the case with costs and Mr Justice Maguire allowed the action against the Wellcome Foundation to go to the jury An account of the inquest held two years ago will be found in THE LANCET, 1937, 1, 1305 and 1480

POSTGRADUATE MEDICAL COURSES IN ITALY —Courses for medical graduates from abroad on the latest developments of Italian medical science will be held in Rome from June 5 to June 17, and then in Bologna Pavia and Milan until the 22nd

A course in phthisiology will be held from July 15 to Oct 15 at the Carlo Forlanini Institute in Rome and an international malaria course from July 21 to Sept 20 at the Ettore Marchiafava Institute of Malariology in Rome Further information may be had from the press and health department of the National Institute Cultural Relations with Foreign Countries Via L Spallanzani 1A Rome

SPECIAL ARTICLES

THE BLOOD-TEST ON TRIAL

The Bastardy (Blood Tests) Bill has attained a second reading and now stands referred to a select committee of the House of Lords Its welcome from the Government was disappointingly tepid If the Lord Chancellor and the Home Office are unaware that perjury is scandalously rife in paternity proceedings, many ordinary folk could enlighten them Incidents like the Batchelor case are no occasion for olympian unconcern At Kent assizes a few years ago the mother of a child was convicted and sentenced for perjury after the man whom she had falsely accused of being the father had gone to prison no fewer than nineteen times in three years because he refused to pay the weekly sum which her false evidence had persuaded the magistrates to impose upon him It is true that the compulsory blood-test can do no more than prove a negative and that its value is limited to a moderate percentage of cases But if injustice can be eliminated even on a small scale, those who are responsible for our forensic system might give the country the benefit of the opportunity We have few judges more eminent than Lord Atkin, perhaps none who combine so high an authority in jurisprudence with so practical an experience of personal work at petty and quarter sessions This, said Lord Atkin last week, is a bill which gives the most powerful and conclusive aid to courts of justice in one of the most difficult matters with which they have to deal The Lord Chancellor enumerated the points which the select committee will be able to elucidate—the proportion of cases in which the test will be useful, the risk of error, the certainty of identifying the persons tested and the total cost likely to be thrown upon public funds There can be no objection to full investigation provided that the zeal for knowledge is not permitted to postpone indefinitely the serious consideration of the bill.

Last week's debate may at any rate have removed certain misunderstandings Lord Gorell, who moved the rejection of the bill, stated that there were very few people in the country today who were competent to perform the tests He seemed ready to convey the impression that the scientific significance of blood-groups for this purpose has neither been adequately studied nor solidly established Lord Dawson of Penn was able to remind him that at every teaching centre and at every first-class hospital there are pathologists who are perfectly competent to conduct these tests, and that there is hardly a subject of medicine which has been so thoroughly examined in the study Home Office experts, according to the Lord Chancellor, advise that, where a test has shown that the putative father cannot have been the actual father, a second independent test should be made as an additional check This suggestion, obviously a point for the select committee, surely cannot arise from any doubt among experts of the conclusions of blood-group research It must originate either in the fear that it is beyond the power of our administrative officials to devise fool-proof machinery or in the belief that the public and the magistrates cannot appreciate the lessons which research can teach. The risk of error in a properly devised scheme would be almost negligible If error did creep in it would be far outweighed by the additional security of defendants against injustice. The education of the public and the magistrates is a process in which our governor might be willing to lead rather than to follow La year, it may be recalled, the Home Secretary was asked by Sir E Graham-Little, M P, whether he would consider circularising magistrates on the subject o the validity and value of blood-tests. In giving a negative reply, Sir Samuel Hoare said he thought the courts were already aware of the possibilit and value of the tests to which full publicity had bee given It would be surprising, however, if more coul not be done to bring the system to the notice o magistrates In the popular mind perhaps scientifi research is still associated almost exclusively with th combination of a few simple chemicals to produc a visible explosion Nor is distrust of the micro scope confined to the ordinary citizen There was historic case in 1857 at Taunton assizes when a ma was charged with murder and a bloodstained knif had been found upon him He said he had used it fo cutting beef. The crown offered scientific evidenc that coagulation must have taken place on th knife-blade; in other words, the knife must hav been in contact with living blood, secondly, evidenc of the relative sizes of the corpuscles in the blood o the knife indicated that it could not have come fro an ox, sheep or pig; the corpuscles were too small their size agreed with that of human blood Lor Chief Justice Cockburn observed that "admitting th great advantages of science we are coming to grea niceties indeed when we speculate upon things almo beyond conception" He advised the jury not t convict on this scientific speculation alone

Our courts seem sometimes still to be living in th eighteen-fifties The old prejudice against circumstantial evidence survives Corroboration by th microscope of the putative father's denial is not fe to be so good as corroboration of the girl's story b someone who saw John and Mary walking out on evening in a lane. Gradually, we must hope, th certainty of the results of blood-tests will establi itself in the popular mind Our judges are n all Cockburns "I agree," said Lord Atkin last wee "that this bill goes only to a proportion—call it small proportion—of the cases that are heard; b in the smallest proportion of cases, if in fact you ca make sure that the man is not the father, then th is an immense addition to the equipment of justi in this country."

MILK AND DISEASE

A DEPUTATION TO THE MINISTRY OF HEALTH

On Feb 8 Mr. Walter Elliot (Minister of Healt and the Earl of Feversham (parliamentary secreta to the Ministry of Agriculture), with a representati of the Department of Health for Scotland, receiv a deputation on the need for adequate safeguard for the milk-supply The members were Sir Ka Le Fleming and Prof. R M F. Picken (respective chairman of council and chairman of the pub health committee of the British Medical Association Prof G. S Wilson (Royal College of Physician Prof Ernest Hey Groves (Royal College of Surgeon Sir William Savage and Dr Thomas Orr (Society Medical Officers of Health); and Dr C O Hawthor and Dr J B. McDougall (Joint Tuberculosis Counc

Sir Kaye Le Fleming, who introduced the depu tion, said that the medical profession were aw that there was a considerable amount of unsafe milk which was the cause of preventable disease, and it was their opinion that effective pasteurisation offered the most practical means of securing safety

Prof R M F Picken recalled that the B M A 's milk policy had been before the representative body for three years in succession and only once had there been so much as one dissentient Complete unanimity was not to be expected of a profession composed of 45,000 individualists, but he knew of no other subject on which doctors were so nearly unanimous Moreover, they had refrained from advocacy of pasteurisation until they had satisfied themselves as to any effect it might have on the nutritive quality of the milk After referring to the hesitation which the profession must often feel in recommending milk under present conditions he said that until milk that was at once safe and palatable was generally available no further substantial increase in consumption could be expected The provisions contained in part VII of the Milk Industry Bill had been welcomed, although some of the safeguards which it had been thought necessary to include were unwelcome The deputation hoped that, whether by a new Milk Bill or through other legislation, power would be given to local authorities to exclude from sale all milk, other than milk from tuberculin tested herds, which was not pasteurised or otherwise rendered safe by some form of heat treatment

Sir William Savage said that the Society of Medical Officers of Health had been passing resolutions on the subject since 1932 So far as the milk supply was concerned, no local authority was at present in a position to carry out its statutory obligations in regard to health Analysing part VII of the bill now withdrawn he said that uneasiness had been felt by the society over the provisions relating to accredited milk, the five years' interval before the pasteurisation requirement could have become effective in the case of producer retailers, the undesirability of repeated discussion of the dangers of a raw milk supply at a succession of public inquiries in different areas, and the requirement that individual pasteurisation orders under the bill should be laid before Parliament

Prof G S Wilson pointed out that as long as five years ago, when the Government was considering the milk in schools scheme the Royal College of Physicians had formulated its views as to the steps that might be taken to ensure safe milk supplies generally Since then, it was estimated, there had been 10,000 deaths due to tuberculosis of bovine origin, and some 2000 cases of undulant fever In addition, there had been sixteen epidemics of milk-borne diseases, which had affected about 3400 persons and had caused at least 67 deaths There was, he contended, no other legislative action which the Minister could take which would be as surely reflected in mortality figures as would legislation to protect the milk supply

Discussing the nutritive value of pasteurised milk, Prof Wilson stated that in the course of nine comparative experiments conducted in this country during the past few years some 250 calves had been divided into approximately equal groups reared on raw and on pasteurised milk Taking all these experiments together, no statistical difference had been found in the growth rate, although the advantage, such as it was, rested with the calves reared on pasteurised milk Experiments performed with mice, rats calves, and human beings all combined to show that the damage done to the nutritive value of milk by pasteurisation was for practical purposes negligible Pasteurisation requirements were already in operation in a number of cities in the United States and Canada and would come into force for the whole province of Ontario in June, and for the whole of Sweden in July of this year In France also legislation had already been passed All that was asked was that this country should not lag behind

Dr C O Hawthorne expressed the disappointment of physicians whose daily concern was with tuberculosis and whose hopes had been aroused by the fair promise of the Government's white paper

Mr Walter Elliot, in reply, said that the deputation would not expect him to anticipate the new legislation which Mr Ramsbotham had stated in the House would be introduced He and Lord Feversham had taken careful note of the representations made by the deputation on behalf of the medical profession and he could assure them that they would be borne in mind when he and the Minister of Agriculture came to discuss the provisions to be included in the promised legislation

SCOTLAND

(FROM OUR OWN CORRESPONDENTS)

EDINBURGH SURGICAL CHAIR

Prof J R Learmonth has accepted the call to fill the chair of surgery left vacant by the death of Sir David Wilkie, and what is Aberdeen's loss is Edinburgh's gain After graduating at Glasgow in 1921 Learmonth became assistant to Prof Archibald Young, with whom he continued to work, first at the Anderson College and later at the University of Glasgow, till 1928 when he joined the surgical staff of the Mayo Clinic where he had already spent a year as Rockefeller research fellow , with this appointment he held the title of associate professor of neurologic surgery in the University of Minnesota After making a prolonged study of the surgery of the brain and of the spinal cord and paying special attention to the neuralgias, Learmonth returned to Scotland in 1932 to succeed Sir John Marnoch as regius professor of surgery at Aberdeen He is surgeon to the King in Scotland

ABERDEEN ROYAL INFIRMARY

The directors of the infirmary are to build a fee paying block at Forresterhill for at least 50 patients The new building which has been made possible by a bequest of over £50 000, is expected to be ready for occupation within a year It will provide treatment for those of moderate means and for those who can pay but who need specialised treatment which they cannot obtain elsewhere It was stated at the meeting of directors that the increasing number of patients who were seeking admission made it necessary for voluntary hospitals to modify their policy of treatment without discrimination Admission to the new home will be restricted to those within an income limit, not yet defined, and to their dependants

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London School of Hygiene and Tropical Medicine —The annual malaria control course for laymen will be held at the school (Keppel Street W C 1) from June 26 to 30 under the direction of Sir Malcolm Watson Additional lectures have been arranged on water-supplies conservancy and sewage disposal, insulation against heat and cold and air-conditioning for comfort in the tropics Further particulars may be had from the organising secretary of the Ross Institute of Tropical Medicine at the school

THE AIR-RAID

A series of articles on medical organisation and surgical practice in air attack by
P. H. MITCHINER, C.B.E., T D., F.R C S., *and* E. M. COWELL, D.S O , T.D , F.R C S.

VII—WOUNDS OF BONES AND JOINTS

THE general principles of the treatment of wounds involving bones and joints are essentially the same as those of wounds in any other region—namely, the thorough exploration and excision of the wound at an early date, removal of missile and shreds, and subsequent rest of the area to allay pain, to promote healing, and to minimise the risk of infection. Bone injuries take the form of compound fractures, usually comminuted; joints are either penetrated by small fragments, or there is considerable damage to the bones whose ends articulate in the damaged joint cavity. In both classes of injury the aim of the surgeon is primarily to prevent infection and secondarily to put the limb in such a state and position that the patient can be transported safely in the immediate future For this reason all extensions applied must be of the fixed type, and limbs must be secured parallel to the trunk to allow of transport on stretchers and in ambulances

INJURIES TO BONES

Many *simple fractures* are likely to be met with as a result of falling masonry. Their treatment in no way differs from that given in ordinary surgical practice and will not be described in this article The surgeon should remember, however, that the patient may be in transit from one hospital to another for several hours, when splints and dressings cannot be looked at, and for this reason plaster bandages should be used with caution. When these cases are admitted to a casualty hospital, the splints should be adjusted as necessary and the patient evacuated as soon as possible to a base hospital set aside for such cases, where radiograms can be taken and adequate treatment given. Only in those cases in which there is great pain or obvious interference with circulation should the splints be removed and the fracture readjusted at the casualty clearing hospital

Compound fractures will be most commonly due to wounds from shells and bombs but are also caused by machine-gun bullets and shrapnel. In most cases the soft parts are very much disorganised, and in penetrating wounds the wound of exit is usually large, with fragments of bone and disorganised muscle protruding from it. The bone is often severely comminuted, or large pieces of bone may be completely missing The nature of the injury is obvious in all cases

To allay pain and prevent shock it is essential that *first-aid treatment* to secure fixation of the fractured bone ends should be carried out early and efficiently For this purpose it is best to apply extension splinting (a Thomas splint in the case of the lower limb) without removing the patient's clothing, except in so far as it is necessary to cut it away to expose and dress the wound. In the case of the upper limb no satisfactory extension splint is available which will allow carriage on a stretcher, and it is better for the limb to be bandaged to the side, while the forearm is supported either in an arm-sling or collar-and-cuff suspender.

On arrival *at the casualty hospital* these patients should, if possible, be radiographed as a routine before being passed through the operating theatre Thus both the extent of the damage and the situation of retained missiles can be ascertained Treatment of the wound differs in no way from that already described—i e , complete excision of all damaged tissue The bone ends must be carefully exposed and thoroughly curetted, especially on the broken surfaces, and loose fragments must be remove There is considerable vitality in bone so long as t attached muscle is intact, and fragments attached undamaged muscle should be replaced rather th excised Projectiles in the immediate vicinity the wound are better removed, for in the case bomb wounds they often carry fragments of clothi with them, but here, as in other cases, no prolong search opening up undamaged tissues should carried out for deeply buried fragments. No relian should be placed on antiseptics, *débridement* scrubbing with soap and water

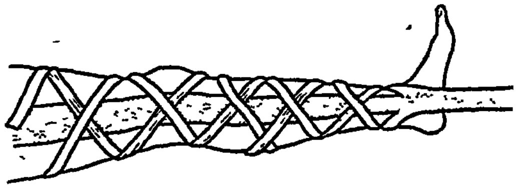

FIG 1—Longitudinal strips of adhesive plaster reinfor with slanting strips preparatory to the application o Thomas splint.

In all *lower-limb fractures* the limb should be plac in a Thomas splint with extension of the fixed ty to the cross bar to allow of transport These ext sions may with advantage be taken from a Ste mann's pin, inserted when feasible through the low end of the fractured bone, well securing the damag tissues Before inserting this pin the surgeon m draw the skin well up the leg, and during its insert he must guard against traversing the joint cavi A suitable calliper is then attached over the e of the pin, and extension can be taken from this the end of the Thomas splint A second sa factory method, which can be carried out by orderl is the application of longitudinal strips of adhe plaster attached to the limb below the fractu The limb must be shaved before applying this plast No circular bands must be placed round the lim but slanting strips may be used to reinforce t attachment of the longitudinal strips (fig 1) If nec sary, the lower ends of the two strips of plaster may attached direct to the bar of the splint, or a wood spreader may be inserted between them and doul cords passed through these and secured to the low end. These cords can then be tightened by t insertion and twisting of a piece of wood (Span windlass), which can be secured to the lower e of the longitudinal bars of the splint when sufficie traction has been secured (fig. 2) It is advisable to cl the wound only if this can be done without tensio otherwise it should be left open and dressed wi hypertonic saline or acriflavine in oleum rici The patient, when he has recovered from the an thetic, should be transferred as soon as possible a base hospital for fracture cases, only being retair at the casualty hospital if he needs treatment shock or if hæmorrhage is anticipated.

In *upper-limb fractures* no satisfactory extens splint exists which will permit of transport T Thomas abduction splint is dangerous if the ar is brought to the side, for it impedes the circulation in the limb, and Robert Jones's modification is difficult to adjust satisfactorily and extremely liable to slip in transit It is therefore better to secure these fractures with either slats of plaster of paris or Kramer's wire splinting, the upper part of the limb being then bandaged firmly to the patient's side after a suitable dressing has been applied to any wound present It is therefore unnecessary and unfeasible to apply extensions at this stage of treatment, provided the patient can be rapidly transported to a fracture hospital at the base

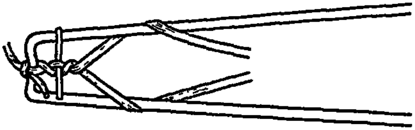

FIG 2—Spanish windlass for maintaining "fixed" extension when a Thomas splint is used

It is not intended to deal here with fractures of special bones, for the general principles of treatment at this stage apply to all fractures irrespective of what bones are involved In fractures of the ribs and pelvis careful examination must be made to exclude the possibility of damage to the thoracic and abdominal cavities and their contents

TREATMENT OF COMPOUND FRACTURES IN SPAIN

In Spain, after thorough excision of the wound and *débridement* of fragments of damaged bone, the whole limb is encased in plaster-of-paris Bomb wounds of the upper part of the humerus are put up in thoracobrachial plasters ("aeroplane splints") In the later stages of healing the patients walk about and are very comfortable In bomb wounds involving femur and leg bones skeletal traction is used with Böhler's apparatus, the weight extension being so applied that movements of foot and knee are allowed when possible When perambulatory treatment of fracture of the leg is permitted, the patients are encouraged to walk with the help of stout sticks with a right angled handle Crutches are viewed with disfavour and not allowed

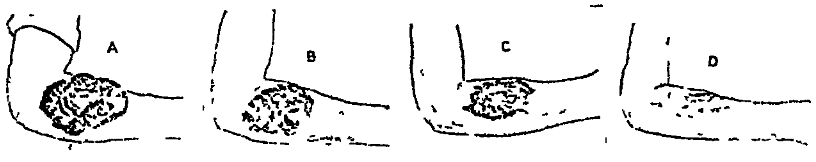

FIG 3—Compound fracture of forearm treated by plaster method A, sepsis already established before application of windowless plaster, B, wound healing on first removal of plaster a fortnight later C, wound at second dressing yet another fortnight later, D, wound at third dressing 45 days after start of treatment, granulating well, almost healed (*After Dr* José Trueta Raspall, Barcelona, 1938)

We do *not* favour the immediate swathing of the limb in plaster of paris, because, excellent as is this method in securing fixation and *satisfactory* healing in many cases, while ensuring comfort to the patient during transport, the risk of undetected gas gangrene and tetanus far outweighs its advantages We therefore advise that no use of plaster bandages should be made for at least four days after excision, and not even then if any doubt exists about the possible occurrence of gas gangrene When this risk no longer exists, plaster bandages have much to recommend them and give good results (fig 3), but as a general rule they should not be used except at a base hospital

SPRAINS AND WOUNDS OF JOINTS

Sprains and sprain fractures are likely to be met with in large numbers, and all these cases should be passed directly to an orthopædic hospital for thorough investigation (including radiography) and adequate treatment Such patients should never be allowed to return to their homes before being radiographed, otherwise troublesome litigation is likely in claims for compensation, and, unless radiograms are available, the medical men concerned are undoubtedly liable for negligence in treatment

Wounds of joints are common and always associated with considerable damage to the ends of the bones whose articular surfaces form the joints concerned These injuries must be regarded as extremely serious both because of the liability of the joint cavity to infection and because of the disabling arthritis which nearly always results from bone damage in the joint cavity All such cases should be radiographed as a routine before going to the surgeon, so that the extent of bone damage and the presence of missiles in the joint cavity can be ascertained The wound should be excised down to the articular synovial membrane, the edges of which must be trimmed, and the joint adequately washed out with sterile normal saline solution, after which every effort must be made to close the synovial membrane and, *if it is feasible (as it is with perforating wounds),* the soft tissues down to the joint Drainage should be avoided if possible, and on no account must a drainage tube be inserted into the joint cavity Retained missiles and portions of clothing must be carefully sought for and removed from the joint cavity and its vicinity The fractures must be dealt with on the lines already indicated, after which the limb must be fixed in an extension and splinted as described for compound fractures, and the patients evacuated as soon as possible to a suitable base hospital

Suppurative arthritis—Should infection have already occurred—and in some cases it occurs very rapidly—the wound should be excised down to the joint, the synovial edges cleaned, the joint irrigated as described, and a counter opening made to allow the joint to drain from its most dependent part, after which the limb is to be fixed in extension on a skeleton splint

The *knee joint* from its position and the extent of its synovial membrane is very liable to wounds and infection, and, though we do not intend to deal with separate joints, wounds of this joint are so frequent that it deserves special mention During the war 1914–18 we used to drain the knee-joint through an incision on the outer aspect of the limb in front of the biceps tendon and behind the ilio-tibial band of the fascia lata Thus adequate drainage was secured through the most dependent part of the joint, and by the adoption of this incision a vast majority of limbs were conserved with a resultant joint which possessed 40–60 degrees of movement. In those cases in which there is great disorganisation of the muscles, severe comminution of bone, and exposure of joints prompt amputation is advisable, for the patient is thereby saved a long and painful convalescence with the preservation of a limb which is all too often painful and useless, and in many cases, though the patient is very fit when seen in the early stages, shock develops rapidly and is in most cases fatal unless the limb has been removed. This amputation should be performed above any tourniquet applied and without its removal.

THOMAS'S SPLINT DRILL

Thomas's splint was introduced in Liverpool in 1886 for the treatment of tuberculous knee-joints In 1916 it was used for front-line treatment of gunshot wounds of the femur, and in 1917 the Thomas splint drill was first devised By the use of this method the mortality was reduced from 70 per cent. to about 40 per cent (in the field). The patients came into the casualty clearing stations fit and comfortable—even after a long journey. No other surgical measure ever gave such brilliant and satisfactory results. By permission of the War Office this drill is given as it appears in the latest edition (1935) of the R A M C Training Manual. A Thomas splint is applied in the first-aid treatment of the following conditions .

(1) All fractures of the femur, except when a large wound in the upper part of the thigh or buttock interferes with the fitting of the ring.

(2) All fractures about the knee-joint (including the patella) and the leg bones.

(3) Cases of extensive wounds of the fleshy part of the thigh or leg.

The Thomas splint consists of an oval ring, united obliquely to two lengths of iron which form the side bars and end of the splint; the ring is padded and covered with leather. The splint can be applied to either leg. It can be carried conveniently by threading the closed stretcher through the ring and tying the side bars to the stretcher The bars should be kept lightly smeared with vaseline and the leather covering of the ring kept clean and soft by the occasional use of saddle-soap. For the application of the Thomas splint to a fractured femur three bearers are required . No. 1 being responsible for the application and Nos 2 and 3 assisting him. The following apparatus is required :—

(1) Thomas's splint (as this splint is applied over the trousers in first-aid treatment, the ring must be large).
(2) Stretcher suspension bar.
(3) Reversible stirrup (Sinclair's).
(4) A metal skewer about 12 in long or, if this is not available, a flannelette bandage 3 yd. long to form the clove hitch.
(5) Five flannelette bandage slings and five safety-pins.
(6) Five triangular bandages
(7) Some loose woven bandages and wool.
(8) Two pieces of Gooch splinting (8 in. and 6 in.).

To form the slings five pieces of flannelette bandage approximately 30–36 in long are *folded* into two The loop ends are pinned over the inner bar of the splint, rolled up, and secured in position by short ties of loose woven bandage. The application may be practised on a person lying on a stretcher, which *should rest on trestles, but an actual casualty* should be splinted where he lies, unless it is absolutely necessary to remove him to a place of shelter. The bearers should practise the application of the Thomas splint in the dark and wearing anti-gas respirators

1. *Preparation of stretcher*—The ordinary army blanket is about three times the width of a stretcher; advantage is taken of this to increase the covering of the patient by folding the blankets in the following way. The two blankets to be placed under the patient are folded lengthwise in three folds; two folds of each blanket are placed on the stretcher, thus *making four layers of blanket under him*, the third fold of each blanket is left hanging over the side of the stretcher. The third blanket is folded lengthwise in two and placed over the patient.

2 *Extension.*—No. 2 bearer stands at the foot of the stretcher *facing* the patient and opposite the injured limb Grasping the heel of the boot with his right hand and the toe with his left, keeping the arms straight, he exerts a steady pull, thereby producing the necessary extension No 3 supports the limb at the site of the fracture until the dressing and Gooch splinting have been applied

3 *Maintaining extension*—To maintain extension a pointed metal pin or skewer about 12 in. long is passed obliquely through the boot just in front of the heel and close to the sole, so that it lies between the sole of the foot and that of the boot. The outer *end will then be about 1½ in. nearer the toes* than the inner end, so that, when the extension pin rests on the side bars of the splint, the limb and foot are in external rotation. A piece of bandage or tape is attached to each end of the pin and tied off to the splint as described under *5, Fixation of the leg*

Another method of maintaining extension is by means of the *clove-hitch halter* To form the clove hitch, No 1 bearer takes a 9 ft length of flannelette bandage and holds it in the left hand, back uppermost, by its middle point, *thus forming a right and left* half. With the right hand, back towards himself, thumb pointing down, he grasps the middle of the left half, raises the right hand to the level of the left hand to the right of it, thumb touching thumb thus forming two *loops, right and left* He now carries the right hand, without any further turning to the back of the left, thus forming a clove hitch with a diameter of 10 in This is applied over the foot without relaxing extension, both ends on the outer side; *the long end is carried under the* instep up, and through the loop round the ankle This forms the halter, which should fit without being tight The two extension bands thus produced are ready to be attached to the splint later on.

4 *Slipping on the splint*—No 1 bearer slips on the splint, No 2 removing and reapplying the upper and lower bands alternately to allow the ring to be passed over the foot The splint should be pushed up under the buttock as far as possible, care being taken to keep the transverse bar *horizontal* No 3 as before, steadies the limb

5 *Fixation of the leg.*—The extension bands of the skewer or clove hitch are tied round the notched bar at the end of the splint as follows The outer band is passed over and under the bar at the notch drawn taut, and held over to the opposite side The inner band is passed in the reverse direction

ie, under and over the notched bar, engaging the first band at the notch and preventing it from slipping. The two bands are finally tied off by a bow. As soon as the extension bands are tied, No. 2 bearer ceases to hold the foot and supports the lower end of the splint. Next the middle sling is tied off over the outer bar behind the knee. No. 3 keeps the knee slightly bent. The slings beneath the ankle and calf are tied off so that the leg is now supported in a shallow trough with the side bars of the splint level with the centre of the leg. To prevent the leg from rising off the splint a narrow-fold bandage is placed across the leg just below the knee; the ends are carried down between the leg and the splint, crossed behind, brought up outside the bars, and tied off on the front of the leg. The lower limb is thus fixed in a position of extension and may be moved freely without causing pain to the patient or damage to the injured part.

6. *Dressing the wound.*—The wound is exposed by cutting away the overlying portion of clothing and the dressing is applied. If there is severe hæmorrhage, steps will be taken to control it before Gooch splinting is begun.

7. *Gooch splinting and bandages.*—One piece of Gooch splinting is placed behind the limb and secured by tying off the remaining two slings. The other piece is placed in front of the limb, care being taken to prevent the lower edge from pressing on the knee-cap. The dressing and splints are now kept firmly in position by two narrow-fold bandages in the following manner. The centre of each bandage is placed on the front of and over the centre of the Gooch splinting. The ends are taken down between the limb and the side bars of the splint, crossed behind, and then brought up on the outside of the bars and tied off in front of the limb.

8. *Stirrup and figure-of-eight.*—The stirrup is pushed on to the splint so that the shaped part fits the sole of the boot, thus preventing any lateral movement of the foot. A narrow-fold bandage is applied in the following manner to form a figure-of-eight. The centre of the bandage is placed under the sole of the boot. The ends are brought upward, crossed, taken down behind the ankle, crossed again, brought up outside the bars, and tied off in front of the [illegible].

9. *Spanish windlass.*—The extension bands are retied if necessary and a small piece of wood is inserted to twist up the bands as soon as [illegible].

10. *Pad in the ring.*—A pad is placed inside the ring on the outer side of the thigh to act as a wedge and prevent undue movement.

11. *Suspension bar.*—The suspension bar is now fitted to the stretcher grips away from the runners, with its horizontal part one hand's breadth in front of the foot. The splint is then slung by two long ties a hand's breadth below the horizontal bar. To prevent lateral movement, the ends of these ties are secured round the uprights of the suspension bar. To prevent vertical movements of the splint, a narrow-fold bandage is passed round the outer bar of the splint below the foot and tied off to the runner of the stretcher.

12. *Warmth.*—The blankets are adjusted so as to give four thicknesses over the patient, who is then ready for removal. For work in the dark in pinning the blankets, it is advisable to include a small piece of bandage or other white material under each pin.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index.

FROM AUTOLYCUS

III—SPEECHES AND ADDRESSES

It needs some of the egotism I deprecated earlier to venture upon an essay on after-dinner speaking, but we need also someone ready to risk obloquy in a good and humane cause. There is a popular delusion in this country—where it is more of a delusion than elsewhere—that anyone can get to his feet and hope to charm and entertain his fellow men with no other equipment than a few anecdotes and his own natural eloquence. There never was a greater error, so let us begin with the aphorism that the speech that isn't worth preparing isn't worth listening to. Least of all men would the practised political speaker or the barrister venture unprepared upon an after-dinner speech, and how should the amateur hope to succeed where these experts know they cannot do so? In a recent speech Lord Baldwin spoke feelingly of the exacting nature of public speaking, more particularly for those who were most successful. It may be taken as a general rule, therefore, that all good after-dinner speakers prepare their speeches, though a few from a false pride affect uncommonly not to do so.

The good after-dinner speech is undoubtedly a work of dramatic art, calling for good lines and better delivery. Now most of us have no natural eloquence and cannot construct or utter an unrehearsed sentence of any length without running up some verbal cul-de-sac and having to retrace our steps for a fresh start. In this halting process each hesitation is marked by a maddening "um" or "ah," and the general effect is that of a man thinking aloud in the erect position. But, as I have said, the good after-dinner speaker is an actor and should know his lines. Then as to matter. I venture to risk contradiction when I say that the best speakers do not use anecdotes, or but sparingly and then adequately led up to and relevant to the general theme that an after-dinner speech should have. A few odds and ends of rehashed anecdotes strung together by some slovenly English do not make a speech, though too often they do duty for one. Probably the best speech is wholly the product of the speaker's own fancy, rich in analogies and in figures of speech, not pompous but light, humorous and easily grasped in passing by the listener. The whole should be couched in good rhythmic English and with a proper feeling for the choice of words which this requires.

In Fowler's "Modern English Usage," a most excellent bedside book, this matter of rhythm in prose is excellently discussed and illustrated by a magnificent example of rhythm from the Old Testament. Excessive quotations are as pretentious in speeches as they are in essays and formal addresses, and should be avoided. The occasional speaker, in short, might do worse than write out his speech and learn by reading it aloud whether or not his sentences are easy of utterance and harmonious in sound. This may sound very difficult, but to become even for ten minutes a public entertainer is necessarily a task calling for thought, and the sense of artistic satisfaction that a man may get from the successful delivery of a good speech is reward enough

* * *

Let us turn now to another side of medical eloquence that from time to time may have an unexpectedly light side, an astringent humour of its own I refer to the addresses to medical societies up and down the country that are given by visiting speakers during the winter months I have had an odd experience with these that one more worldly-wise would perish rather than relate, but my readers know ere this that they move with me in other realms than those of reason I recall the first occasion on which I was invited to give one of these addresses The invitation came from the ancient medical society of a Cathedral City, and the notion that I had been heard of in circles so exalted was almost incredible. I determined to give an address that should be spoken of with reminiscent awe by all who heard it, for years yet to come The day arrived and the shades of a damp November evening were drawing on as I reached my host's house The meeting was to be held in the board room of the local hospital, and primed by an excellent dinner we set out for it As we drove along my host observed casually that an epidemic of influenza was devastating the town and might *prevent that overflowing audience that in other* circumstances I could have expected. Reaching the hospital, we passed along the usual dimly lit passages to the board room An impressive assembly of chairs greeted me The officers of the society welcomed me warmly and hastened to deplore that devastating epidemic of influenza that might keep away so many of their colleagues. While we exchanged small talk on this subject, the two resident medical officers arrived. In a few seconds two lady doctors followed, and quite a little crowd of seven of us were gathered Someone had the notion of turning on some more lights and the place began to look quite gay, though the paralysing fixity of about fifty empty chairs was beginning to daunt me Time passed, half a dozen more men straggled in one by one and stood about exchanging compliments It was by now ten minutes after the time advertised for my address, and the president suggested that he should take the chair. We spread ourselves out, I sitting behind a little tribune, clutching my typescript in damp hands and finding my tongue strangely dry. The secretary read the minutes of the last meeting into the echoing space, and told how an address had been given by Sir Willoughby Patterne on the hormone treatment (or was it the vitamin treatment?) of something or other in women (or was it in men?) An animated discussion had followed, a vote of thanks had been enthusiastically passed, and 79 members had been present (Ah! thought I in my innocence, that must have been before the influenza epidemic began to devastate the town). I was still cogitating upon this when I heard the president introducing me to the luckless thirteen whom my fame had been sufficient to drag from their homes this nasty evening. It appeared that I was a very eminent person, was an ornament on the staff of my hospital, had done them a great honour in coming to address them, and he now called upon me to give my address I stood up, cleared my throat yet again, faced the array of Windsor chairs and the scattered stalwarts in whom nothing could kill the thirst for knowledge, and began. When I had finished, my audience was very kind to me. Coffee and sandwiches appeared and we all gathered together round the table at the end of the vast room, like refugees clinging together f warmth and mutual support. So ended my fir introduction to public life

The following winter two similar invitations arrived Better luck next time, I thought, and again with the earnestness of comparative youth I composed an address for each of them On my second excursion my host met me at the railway station. It was again a drab winter evening, and as he shook hands he told me he had feared he might not have arrived in time to meet me as an influenza epidemic was devastating the town and had kept him on the run all day My heart sank, and I remembered that history repeats itself It does, but this time there were two more hospital residents to round up for the meeting and also two old friends whom I had known during the war in the R A M C. When it came to the point, there were no less than seventeen of us Once more the secretary read the minutes, and it appeared that that infernal fellow Sir Willoughby Patterne had been before me again. This time his score had been only 54, so I felt that I was catching up The chairs no longer intimidated me quite so fiercely, and as I spoke sitting I could not see their serried ranks quite so well The place looked almost half full After I had finished I heard more of the influenza epidemic.

By this time I began to wonder whether it was altogether fair to this popular malady to blame it *for the poor houses I seemed to be securing.* There might be other reasons obscurely connected with my humble rank and professional standing Therefore before I started off for my third excursion I wrote to the local secretary, who was an old fellow-student, and asked him if by any chance influenza was devastating his town and if so whether it might not be wise for me to postpone my visit He assured me by return that all was well and that I might expect a first rate turn-out of the local doctors. So I set out from Paddington for the west, again on a winter afternoon As we passed Swindon I noticed the air was getting misty, and a dense fog greeted me as I stepped from the train at my destination However I was cheered immensely as my portly friend bore down on me through the damp and chilling haze. We had a twelve-mile drive before us, the fog getting thicker as we left the town and reached the open country. "I'm afraid this fog will rather dish our meeting," he remarked, and my forebodings could no longer be stayed. To cut a long story short, our score that evening was seven, but they were a warm-hearted seven and after the meeting we foregathered at my friend's house and extended a cheery evening far into the night

* * *

As I was leaving next morning I said to my friend "*Has that man* Willoughby Patterne ever been down here to talk to you fellows?" "Oh Heavens!" he replied, "that was a wash-out We had influenza here at the time, and only five men turned up to listen to him He was sick about it." I could have flung my arms about him and wept with joy My self-respect was restored But still, it must be a great thing to have a handle to your name when you go on tour.

MEMORIAL TO SIR FREDERICK MOTT—A memorial plaque to Sir Frederick Mott, who died in 1926, was unveiled at the laboratories of the medical school of Birmingham Centre Hospital on Feb 9 The plaque is the gift of Dr H. A Pullar Strecker who was associated with Sir Frederick in the work of the Joint Board for Research in Mental Disease for Birmingham and adjacent counties.

LETTERS TO THE EDITOR

PROTECTION OF CHILDREN IN TIME OF WAR

SIR,—The question of the protection of children in war time through methods of billeting, evacuation, camps, and such like, is naturally one of much concern to a society like the Save the Children Fund. And it is important to realise what efforts have been *and are being made to deal with the problem from an* international point of view. For a long time the British Fund and the Save the Children International Union have been discussing it, and at the annual council of the latter at Geneva in April last proposals were put forward and approved in principle by the various national societies there represented, including the British, Dutch, German, Greek, Swedish, and Swiss. But it was agreed that governments would have to be consulted before any definite action could be taken.

The question again came before the International Red Cross Conference which was held in London last June, and a resolution was passed asking the International Red Cross Committee "to study the problem of protecting women and children against the suffering resulting from armed conflict, in co-operation with the Save the Children International Union, and recommending the National Red Cross Societies to bring the question before their Governments after consultation with the national bodies specially concerned with the protection of women and children." In pursuance of this resolution, there was formed a joint commission of the International Red Cross Committee and the Save the Children International Union. This commission, assisted by legal experts, has now completed its revision of the draft convention prepared by the union, which applies to children only and which it is hoped some neutral country will be prepared to submit to an international conference for final approval and subsequent ratification on the model of the international red cross convention. The convention, which is entitled "convention for the protection of children in the event of armed conflict," applies to all children under 15 years of age "irrespective of race, nationality, or creed, residing at the outbreak or during the period of hostilities in the territories of states engaged in armed conflict." Belligerents shall allow food, clothing, and other supplies to be sent from other countries for the benefit of such children (Art. 2). In time of peace, or after the outbreak of hostilities, places of safety shall be established under certain conditions for the exclusive purpose of the protection of the children to be concentrated therein, and these places shall at all times and in all circumstances be respected and protected. Such protection shall include the persons who may be engaged in the care, education, and maintenance of the children, but in no case shall they exceed in number 10 per cent. of the children placed under their charge (Arts. 3–8). A distinctive sign or emblem shall be displayed over all such "places of safety" and also worn by the persons above referred to (Arts. 9–11). A list of such places of safety shall be duly notified in time of peace and shall be under the supervision and control of a commission of neutrals who shall immediately inquire into cases of alleged violation of the convention (Arts. 12–14). Provisions are made for the adherence of belligerents to the convention (Arts. 15–18), and for the prevention of abuses and violation (Arts. 19–21).

I think it will be generally admitted that such a convention if observed—and its infringement would involve more universal condemnation even than a breach of the red cross convention—should do something to mitigate the dangers and the horrors of war and preserve the rising generation for a future to which, it is hoped, such abominations will be unknown. No civilised government surely can hesitate to subscribe to it or to any form which it may take *after exhaustive examination and discussion.* And it would serve greatly to fortify the operation of such national schemes as are now under debate, particularly as regards the marking of children's camps with the proposed international symbol and the penalties of infringement.

Is it too much to hope that the seed thus sown will before long bear fruit and the conscience of the world be aroused to the imperative necessity of doing by joint action at least as much for the safety of its children in war time as it does in peace?

I am, Sir, yours faithfully,

H. D. WATSON,
Chairman.

The Save the Children Fund, 20, Gordon Square,
London, W.C.1, Feb. 9.

TORSION OF THE APPENDIX OF THE TESTIS

SIR,—It is often surprising to find that some condition which is now relatively common was first mentioned in medical literature as recently as 1922. Such a condition is torsion of the appendix of the testis which is fully and carefully described by Mr. G. D. F. McFadden in your issue of Feb. 11. Can it be that it is only of late years that this little structure has misbehaved itself—perhaps it is the hectic whirl of modern life that has caused it to twist? Or can it be that it occurred in days gone by, but passed unrecognised? This is unthinkable, because it is surely admitted by all that clinical observation was far more acute and exact then than it is now, when so much diagnosis is, alas! made on reports from the pathological laboratory; but Mr. McFadden tells us of no pathological test for diagnosing torsion of the testicular appendix.

The purpose of this letter is to record briefly a case of torsion of the appendix of the testicle upon which I operated in 1929 where the signs were somewhat different from those described by Mr. McFadden.

The patient was an adult who had extremely severe pain in his right testicle and on examination there was localised tenderness at the upper pole of the testis, so severe that operation was carried out immediately. I was not aware of the condition at that time and an accurate diagnosis was not made until the testicle was exposed at operation and the appendix seen to be about one-third of an inch long, dark purple in colour and twisted on its pedicle. It was removed.

The three points in which this case differs from those reported by Mr. McFadden are that this case was in an adult, there was no swelling and œdema of the scrotum, and it was easy to elicit well-localised tenderness at the upper pole of the testicle.

How delighted would Morgagni have been could he have realised that not only was his little hydatid on the tip of the tongue of every medical student studying anatomy, but that through its gyrations it had stepped into clinical and operative surgery.

I am, Sir, yours faithfully,

London, W.1, Feb. 12. JOHN HOSFORD.

AS OTHERS SEE US

SIR,—The leading article in your issue of Feb. 4 seems to me to reflect the views of those whose position is financially secure I have often noticed that the highest moral principles—by which expression I mean the high ideals and exalted altruism we are prone to expect in the conduct of others—are usually on the lips of those who enjoy an assured *income* I *feel that it ill* behoves such people to advise or blame in the matter of the admission of refugees to medical practice Most medical men work in circumstances that are, gloss them as we will, competitive, and it is for this majority to decide this question because it is they who would be most affected by the advent of refugees The conduct of this majority towards the refugees may be mean and careless of the public weal, but it is not for those who risk nothing to point the finger of scorn

Is this conduct, however, so despicable as you imply? You say "the main appeal" (that is the *appeal for exclusion*) "has been to the pocket and to prejudice." Of course it has, and why not? Was it not Lucretius who said "happy is the man who can afford to take no thought for his pocket"? I have found that medical men are for the most part kindly, generous, and long-suffering; but they are not, naturally, entirely uninterested in fees. Is it not time that we dropped the pleasant fiction that doctors practise their profession solely in the interests of science and humanity? This "tradition that has hitherto made medicine pleasanter than many other occupations," as you put it, is nowadays plain humbug, and deceives no-one but ourselves It originated in days when many practitioners were, like Dr. Thorne, gentlemen with some independent means, and is no longer suitable today when many have to borrow the money to start in practice, and when the middle classes, in comparison with those of a generation ago, are greatly impoverished Nowadays very few men in any profession are earning sufficient to educate their children and provide for their old age; many are dependent for these things upon money made by their relatives in the piping times of Queen Victoria Furthermore this impoverishment of the middle classes is *rapidly destroying* private practice.

It is true, as you say, that there are many places in England and elsewhere where doctors are too few In fact, almost every doctor in private practice is overworked, but he is certainly not overpaid In these circumstances I *cannot* see *that* concern for the pocket is so despicable "Can we," you ask, "confidently claim that the interests of the medical profession, regarded as money-earners, never conflict with those of the community?" Why should we make such a silly claim, seeing *that* the *interests* of the individual are always to some extent in conflict with those of the community?

You praise, quite rightly, the generosity of those university teachers who have sacrificed a portion of their incomes to help support *refugee* scholars. You apparently expect the medical profession to imitate this example, but the analogy is false because the conditions are not the same in each case An influx of refugees into "competitive" practice might easily reduce the incomes of neighbouring English practitioners very considerably The extent of this reduction is obviously unknown until trial has been made, and if the trial proved more damaging than expected the harm could not easily be remedied.

Maybe the *fears of the profession are groundless*; they are certainly aggravated by this element of the unknown, but they are not altogether unreasonable and are certainly quite as human as the humanity the profession is expected to serve Moreover, it must not be forgotten that to the public, which still associates medicine with magic, the possession merely of a foreign name has thaumaturgical qualities of great magnitude. It is only a few weeks ago that a woman, who is regarded by those who know her as intelligent, said to me "one still has to go to the Continent for the best surgery, I suppose"

There is only one way in which the medical profession can become more altruistic than it is at present, *it must imitate the* wisdom of the Roman Church and ordain that its priests be celibate and preferably live together in monastic communities so as to be freed from the cares of a family and the world

It should be possible to find a way to secure the services of refugees without jeopardising the inadequate incomes of overworked men Our academic idealists might well employ their leisure in devising such a scheme. Until they do, it is unreasonable to expect things to be other than they are. In conclusion I may add that no interest of mine would be in the least affected by the admission of refugees

I am, Sir, yours *faithfully*,

G H CRISP.

Elm Park Road, Chelsea, S W 3, Feb 13

PROPHYLAXIS OF TUBERCULOUS EMPYEMA

SIR,—In my article appearing on Jan 21 I said that a spontaneous pneumothorax which is accompanied by pleural effusion should be regarded as tuberculous I was interested to read the letter from Dr M H Pappworth in your issue of Feb 11 in which he points out that fluid may appear in the pleural cavity when any pneumothorax is resolving on account of the partial vacuum which is present

I entirely agree with Dr *Pappworth* on this point, but I do not think there is any difference between us it is simply a question of defining one's terms When a benign, non-tuberculous spontaneous pneumothorax is resolving, a little fluid often appears in the pleural space and usually takes the form of a thin film of fluid over the almost expanded lower lobe This *thin film of fluid cannot* be dignified by the name of "pleural effusion." I think that "œdema ex vacuo" is a better term, and it seems that Dr. Pappworth is of the same mind for this is exactly the phrase which he uses in his letter

There *has, of course*, been much argument in the past as to the relative frequency of emphysema and tuberculosis as causes of spontaneous pneumothorax. I think I am right in saying that the presently accepted view is as follows · tuberculosis is the commonest *cause if all cases of spontaneous* pneumothorax are grouped together, regardless of the previous health of the patient; of cases of sudden spontaneous pneumothorax occurring in apparently healthy people, about 90 per cent are due to rupture of a *emphysematous* bulla I should, however, welcome the views of others on these points

I am, Sir, yours faithfully,

LAWRENCE ROBERTS

Papworth Hall, Cambridge, Feb 11.

STIGMA AND PREJUDICE

SIR,—Referring to the tendency and natural desire *to employ euphemistic names for mental* care hospitals and clinics, I should like to mention that as long ago as 1845 it was suggested (I believe by Dr Thurnam) that the County Pauper Lunatic Asylum should be called the Orthophrenic Institute.

I am, Sir, yours *faithfully*,

JAMES R WHITWELL.

Chandos Street, Cavendish Square, W.1, Feb 9.

THE FEET OF THE INDUSTRIAL WORKER

SIR,—I have followed with interest the articles appearing on this subject and ask myself why the feet of the industrial worker should come so prominently under review Why not the hands which are comparable appendages ? And why only refer to the industrial worker ? People in all walks of life complain of their feet, the leisured as well as the workers, men as well as women, wearers of high heels and wearers of low heels Nor is the problem solved for the worker when she leaves her work to go home, so it cannot be the work that is to blame One point is common to all the sufferers—they are glad to sit down and get their shoes off It is not simply a question of taking the weight off the feet by sitting down, they want to get their shoes off because they are uncomfortable

We may therefore assume that in at least 99 per cent of foot discomfort the shoes are to blame, and according to lay reports the leather research workers are taking the matter in hand One recent article implies that heels of different height may be necessary in different occupations and the height of heel for the woman on duty should be different from that off duty It is not likely that such line of research will lead anywhere Men wear the same height of heels on and off duty, and if their shoes are comfortable they can wear them all day—at work and away from work The rich woman with foot discomfort has dozens of pairs of shoes for wear on different occasions, but usually she has at least one pair which are more comfortable, although in appearance and height of heel they may not appear much different from the uncomfortable ones My contention is that with a reasonable heel—and I do not rule out those 1½ in or 2 in high—the height is almost negligible, provided other conditions are satisfactory What matters is the insole and build of the shoe I have proved to myself in hundreds of cases that it is possible to alter and adjust shoes not only to make them more comfortable but to produce far reaching effects on the wearer, without altering the height of her heels

At different times I have hinted at some of the defects seen during the process of stripping and examining some thousands of pairs of shoes, but to remedy those defects is too big a task for any one firm of manufacturers Nor should one firm be in a position to make profit out of this which is a national affair and ought to be supervised by the government Whole sections of workers, tramwaymen, policemen or soldiers, or girls in different trades say telephone operators or post office workers, could be shod in accordance with various instructions and the effects noted The expense of such investigation need not be very great, because the people who are the subject of the investigation must wear shoes in any case, and the cost in the end would not work out greater than the cost of shoddy or unsuitable shoes.

If we grant that shoes cause foot trouble, we must see that the children are properly shod, but in the poorer districts this is not at present possible It presents a hard and disturbing problem to medical officers of health who are attempting to deal with the need Some of these children never have new shoes of their own They get the cast off shoes of someone else, perhaps bought in a jumble sale for a penny, and when they are worn out they have no money to pay for repairs They simply wait till there is another jumble sale How can children's feet properly develop and function under such conditions ? It is another national problem

Not least in attacking the question I would seek the help and coöperation of the orthopædic surgeons I would first of all ask them to realise that in the foot they are not dealing with a piece of dead mechanism but with a living thing which reacts in extraordinary ways to different stimuli And these stimuli can be applied in such a way as to make the foot strong, whereas applied in other ways the foot may be weakened and crippled A bridge which shows signs of weakening may be propped up and supported so that it does not fall, but a weakened foot still has within itself power of repair and adaptability, and props applied as in a weak bridge may simply destroy the inherent power of repair in the foot I have tried most of the mechanical aids myself, and have been surprised how uncomfortable and crippling they are, even though on casual examination they look as if they might be comfortable and useful. Because they have been advised by some orthopædist, no matter how eminent, does not necessarily mean that they are the last word in shoe adjustment and incapable of improvement If only orthopædic surgeons would taste a little of their own medicine, let them first of all alter their own shoes and wear them for three or four days, or even three or four hours, then they would begin to wonder whether such alterations were likely to produce any beneficial results They would look at things from a different angle, and we would soon see the end of most of those metatarsal pads and bars, bunion pads and the crooked heels and wedges generally recommended

I am, Sir, yours faithfully,

Portland Place, W 1 Feb 13 THOMAS MARLIN

EXCRETION OF INJECTED ANEURIN

SIR,—Prof Marrack and Miss Höllering, in their discussion on the excretion of vitamin B_1 in your last issue, suggest that the estimation of vitamin B_1 in urine by the thiochrome method will give results which are not likely to be more than 30 per cent too low

When the method of Westenbrink and Goudsmit, employing a fluorimeter, is used it seems to me that the results cannot be established within a range of less than about 500 per cent The difficulty arises from the fact that even diluted urine prevents in some manner the full fluorescence being developed from crystalline aneurin added to it This inhibiting effect is exerted by different urines in differing degrees While in some cases added vitamin B_1 gives a fluorescence equal to 50–80 per cent of its theoretical intensity, in other cases only as little as 20 per cent will be produced The estimation of the vitamin B_1 in the urine depends on the measurement, by one means or another, of the fluorescence induced in it by controlled oxidation The results, however, can be calculated in two ways They can either be measured on the basis of the fluorescence induced in the particular sample of urine by a measured amount of added aneurin as has been done by Prof Marrack, or they can be calculated from first principles from the known fluorescence of thiochrome It can be seen that the former calculation may give results five times as large as the latter While the nature of the inhibition of the fluorescence of thiochrome by urine is so little understood it would be wise to treat the figures obtained by the thiochrome reaction with some reserve

I am, Sir, yours faithfully,

MAGNUS PYKE

The Research Laboratories Vitamins Ltd., Upper
Mall Hammersmith W 6 Feb 11

CLINICAL USE OF STILBŒSTROL

SIR,—I have read with interest the letter from Dr Varangot on the toxic effects of stilbœstrol and Dr. Bishop's reply to it I was among those invited by the Therapeutic Trials Committee of the Medical Research Council to test the œstrogenic effect of stilbœstrol, and my results were published jointly with those of Dr. T. N MacGregor (*Brit med J* Jan. 7, p 10) and they closely resembled those of Dr. Bishop

I have had personal experience of 48 cases treated with stilbœstrol. Three patients complained of a certain amount of nausea but no vomiting or epigastric pain. In two of these the nausea later passed off, although treatment was continued. In the third the nausea was more severe and there was epigastric pain, but no vomiting. In this case treatment was discontinued Three other patients admitted on questioning to a certain amount of nausea, but had not considered it sufficiently severe to mention All the menopausal cases except the one in which treatment had to be abandoned were enthusiastic about the relief they obtained from their symptoms

Dr Varangot appears to have ignored the fact that stilbœstrol is more active by mouth than the naturally occurring œstrogens He points out that in menopausal cases treatment must be prolonged That being the case it is a great advantage to the patient and a convenience to the practitioner to be able to avoid irksome injections. If, as Dr. Varangot states, stilbœstrol by mouth is three times less active than œstradiol benzoate by injection, it is a simple matter to treble the dose of stilbœstrol

I am, Sir, yours faithfully,

Harley Street, W.1, Feb. 13 W R WINTERTON

SEPTICÆMIA OR BACTERÆMIA?

SIR,—In a leading article in your last issue on the treatment of acute osteomyelitis the following statement is made: "Children over the age of two years are certainly suffering from a septicæmia which is staphylococcal in origin " The term septicæmia I was taught to apply to a grave condition in which bacteria not only enter the blood-stream but multiply there This restricted use of the term is, I understand, approved by the bacteriologists of today It implies a marked lack of resistance to the particular strain of bacteria concerned. Unfortunately the word is constantly being used when no true septicæmia is present. In many types of infection, both medical and surgical, bacteria may be found in the blood provided the culture be taken at the right moment; yet the bacteria are not multiplying in the blood and the patients are not suffering from septicæmia Bacteræmia is a convenient term for this temporary, recurrent, or intermittent pollution of the blood-stream Examination of the current textbooks of surgery reveals that most of them are far from clear on this point, and some are positively inaccurate and misleading

As to acute osteomyelitis, all agree it is the result of a blood-borne infection; the responsible bacteria on entering the blood-stream are for the most part destroyed, only a few finding a suitable lodging in one or more bones Each such focus forms a possible source of further temporary and recurrent infection of the blood-stream. This constitutes one reason for surgical interference of the infected bone—conservative interference let it be by all means In the majority the resisting powers of the patient are sufficient to prevent the bacteria from multiplying in the blood, and septicæmia does not occur. There are however cases in which true septicæmia is present from the start, the local osteomyelitis being no more than a complication, the efficient treatment of which makes no difference whatsoever to the grave general condition of the patient I submit that in many of the more severe cases of osteomyelitis septicæmia can only be excluded by draining the focus in the bone and watching the effect on the temperature

However, it is not my purpose to discuss the treatment of acute osteomyelitis, but to protest against the use of the word septicæmia for every condition in which living bacteria are found in the blood.

I am, Sir, yours faithfully,

Harley Street, W.1, Feb 14. H. A. T FAIRBANK

"MOTHERS' WELFARE CENTRES"

SIR,—May I endorse what Dr Joan Malleson has to say in your last issue on the problem of criminal abortion in this country It is certainly true that the really necessitous woman has not the same opportunity of having her case fairly investigated and treated as has her better-to-do sister, with the result that she is, all too often, driven to the appalling alternative of terminating a pregnancy criminally Dr. Malleson's suggestion for the establishment of clinics where such women could obtain early examination, advice, and help would be one step towards the solution of the criminal-abortion problem

We have tried in a small way to meet this need at some of the women's welfare clinics in Devon Through the kindness of the pathologist to a general hospital in the county we are able to get Aschheim Zondek tests done free for necessitous patients, and the consulting staff of the same hospital is always willing to admit and deal with cases which, on investigation prove to be bad maternity risks Practitioners are beginning to take advantage of this service and the women themselves know that if they are ill or have had serious complications with previous pregnancies or confinements their case will be sympathetically considered Such a service does not of course obviate the need for making available sound contraceptive advice as the first line of defence for the women.

I am, Sir, yours faithfully,

MARGARET HADLEY JACKSON

Crediton, Devon, Feb. 14

THE NATURE OF VIRUSES

SIR,—My attention has been drawn to the fact that a theory regarding the possible nature of viruses which I put forward towards the close of the Rede lecture for 1938, on Virus Diseases and Viruses, is not original I had overlooked an article in *Science* (1935, 82, 443) in which Dr R. G Green, of the University of Minnesota, had already enunciated essentially similar views, pointing out that viruses might be regarded as micro-organisms which, through parasitism, have lost some structures and substances To quote Dr. Green's words, "Such a virus would be a functionally complete unit of life only when immersed in living protoplasm There it would complement its own limited vital processes with those of the surrounding protoplasm "

I much regret that Dr Green's communication escaped my notice, with the result that I omitted to give credit to him for a prior publication of the conception.

I am, Sir, yours faithfully,

P P. LAIDLAW

National Institute for Medical Research,
Hampstead, N W 3, Feb 9

PARLIAMENTARY INTELLIGENCE

BLOOD-TESTS IN BASTARDY CASES

In the House of Lords on Feb 8 the Bastardy lood Tests) Bill was referred to a Select Committee moving the second reading Lord MERTHYR said at in the years 1926–35 the average number of plications in bastardy cases was 7200 a year is bill was designed to bring science and medical owledge to the help of the law in this matter uman blood could now be divided into distinct oups which were hereditary, and their transmission s governed by a Mendelian law which seemed ite immutable These groups were present from fore birth till after death In a very small number cases the group might not be apparent in a child til it was some months old, yet it was always parent sooner or later, and therefore the worst fficulty that could arise would be that the test uld have to be postponed for a short time The oups never changed, so that if the blood-group of a other of a child was known, and also that of the ild itself, a table could be drawn up showing to at groups the blood of the father must belong a man was accused of being the father of a child d his blood group was not in that table then he uld not be the father of that child By this means, hile it could never be proved that a man was the ther of a child, it could be shown in a certain mber of cases that he could not be the father 10–15 per cent of all the contested affiliation ses in the courts the father could be definitely cluded in this way Results obtained all over the orld revealed that out of every three accused men, ho were in fact innocent of being fathers, one uld be exonerated by this method The system as used extensively on the Continent, particularly Germany and Scandinavia and it was legal in least two of the American states In clause 1 of e bill the important words were used that "the ourt may, and at the request of either party shall," der a test to be made of the blood of all three of e parties to the case—the mother, the child and e alleged father If compulsion was not used the actice would vary widely all over the country he courts at present had no power to order tests nd they were only carried out by consent As a sult of this clause tests would be ordered wherever ere was a real conflict of evidence in paternity ses Clause 3 enabled a certificate of a pathologist -i e , the actual tester—to be accepted as evidence a court of law Clause 6 provided that the tests hould be made by approved persons in the shape of gistered medical practitioners Summing-up Lord erthyr said that without this bill these blood tests ould go on in small numbers, but they would be xpensive, and confined to cases where there was greement The tests would be completely unregulated , there would be no standardisation of practice, nd no rules

Lord GORELL, speaking as president of the National ouncil for the Unmarried Mother and her Child, aid that the time was not yet ripe for the bill The ossibility of mistakes seemed a decisive argument gainst it He understood that few people in this ountry were really qualified to conduct the tests It was a drastic proposal that a certificate given by n approved person who need not come before the ourt, should be treated as the sole evidence

Viscount DAWSON OF PENN said there was hardly ny subject in medicine which had been so thoroughly tudied as this In the study of the types of blood here had emerged two qualities, A and B, that gave four groups—namely, blood which had the quality A blood which had the quality B blood which had the combined qualities A and B and blood which did not possess these qualities at all The groups were for convenience labelled A B AB and O Neither quality A nor quality B could appear in any child unless that quality was present in one or both of the parents To that proposition there was no exception whatever Secondly, if one took children and parents the combinations of AB parent with O children, or vice versa of O parent and AB children were impossible It was on these propositions that this work depended Those two propositions rested on tests made by fifty independent observers spread over the civilised world on a total of 8717 families with 19,080 children Among this large group there were 30–40 discrepancies which would be found to be due either to faulty technique or to illegitimacy In a more recent study on 10,092 mothers and 12,943 children no single exception was found Under the Mendelian law they could compute mathematically what were the probabilities in certain groups of observations A theoretical computation was made of the frequency with which a quality which appeared in the parents reappeared in the child In the group he had just mentioned the computed result was very nearly identical with the actual observations Seldom were facts better attested than this At a later period two other qualities, M and N, were discovered in the red blood-cells, and these could be used in skilled hands for confirmation The test was of limited application it could only prove non-paternity and only to the extent of 30 per cent of the innocent men He protested against the suggestion that there were not enough people able to carry out the tests There was not a teaching centre or a hospital of the first importance where there was not a pathologist perfectly well able to perform them

THE GOVERNMENT VIEW

The Lord Chancellor (Lord MAUGHAM) said that the Government's view was that the bill should go to a select committee They would therefore not attempt to prevent the second reading being carried, but would not pledge themselves to support the bill at any rate in its present form The scientific statements for which Lord Dawson had vouched were based on cases where one assumed the tests had been done by people of great skill and experience Would this always be so, and was there not a chance that in a certain proportion of cases mistakes would be made? The eminent pathologists who had been advising the Home Office had suggested that under certain conditions it might be advisable for a further sample of the three bloods to be sent to another institute for an independent check A mere suggestion of this sort was enough to lead one to conclude that the first test by the approved person might be doubtful, and if there had to be a second test, the trouble and expense and delay would greatly be increased Seeing that it was only in a third of the genuinely contested cases that they would get a useful result, the matter ought to be carefully considered by a select committee

CANCER TREATMENT

In the House of Commons on Feb 13 the Cancer Bill was considered in Committee Sir H MORRIS-JONES moved an amendment to clause 1, which deals with the duty of local authorities to enable medical men to send cases to hospital for investigation as well as treatment He said that he was anxious to encourage all medical men especially in the rural districts not to be afraid of sending cases of suspected cancer to hospital even though they might not be quite satisfied in their own minds that it was cancer —Mr ELLIOT, Minister of Health, said he had no very strong objection to the amendment, but he thought the point could better be met under the subsection which dealt with the arrangements for facilitating diagnosis and treatment The amendment was accordingly withdrawn

Mr ELLIOT said he thought it was the general desire of the House that consultation should take place between those engaged in every aspect of the treatment of cancer, and should not be limited to radium treatment, if full advantage was to be taken of the money and skill which were to be put at the disposal of cancer patients in the future. On consideration he had decided to omit statutory consultation with the Radium Commission from the Bill. Some consultation, however, must take place, because it would be undesirable that the Minister should himself decide all these matters. He proposed to appoint a subcommittee of the existing Medical Advisory Committee to advise him on general principles in regard to the treatment of cancer This subcommittee would include experts in surgery, medicine, gynæcology, radium therapy, pathology and public-health administration. His idea was that the authorities should draw up their schemes and submit them to the Minister, who in considering them would have the advantage of the best technical opinion. It would be best for local authorities when drawing up their schemes not to consult this subcommittee but to take into consultation anybody whose advice they wished to have, such as the representatives of voluntary hospitals and medical practitioners He hoped that this would meet the fear of some hon. Members that radium was given too prominent a place in the bill, and that local authorities were going to be put under a technical commission.—Sir F. Fremantle said he would like some further explanation of the subcommittee which was to be set up and also some assurance that the procedure would not lead to delay —Mr. Graham White welcomed the Minister's scheme for consultation. The Radium Commission, he said, now disappeared from the bill, and while no-one criticised the manner in which it had discharged its duties, nobody would suggest that it was a suitable body to direct a national campaign against cancer.

Colonel Nathan said that the British Hospitals Association held the view that while the setting up of an advisory committee was a wise step, the membership of the committee should not be restricted to those who could advise on the technical aspects of diagnosis or treatment. Matters of a purely administrative and practical character would have to be considered The voluntary hospitals therefore felt that they should be represented on the committee.—Mr Elliot said that there was a danger of getting themselves so entangled in committees that the work might be impeded Therefore he would not like to pledge himself to accepting a consultative committee for the voluntary hospitals. He would, of course, have full discussions with the hospitals on any matters which concerned them

Mr Graham White moved an amendment substituting for the Minister's proposal of an advisory subcommittee a national council representing physicians, surgeons, radiologists, pathologists and biochemists Such a body, he said, would have greater prestige than a subcommittee, and would be more effective and efficient.—Sir F. Fremantle said he believed that there had been consultations between the Minister and the British Medical Association and he would like to be satisfied that the B M.A. had put fofward proposals for the general practitioner to be included. There should be a scheme by which local authorities would be guided in the earliest stages of their proposals —Mr Elliot thought that the bill as it was would conduce to what hon Members had in mind—namely, informal consultation when the schemes were in the initial stage There was a statutory provision for consultation between the local authorities and the general practitioners The review of schemes by those looking at them from a rather wider aspect would be secured by dovetailing the subcommittee and the Medical Advisory Committee, for that body included the presidents of the Royal College of Physicians, the Royal College of Surgeons, and the Royal College of Obstetricians and Gynæcologists, and the chairman of the British Medical Association.

NOTES ON CURRENT TOPICS

Workmen's Compensation

In the House of Commons on Feb 8 Mr. Arthur Henderson moved a resolution on behalf of the Labour Party welcoming the appointment of a Royal Commission to inquire into workmen's compensation but expressing the opinion that legislation should be enacted without delay for an immediate increase in the compensation payable.—Sir Arnold Wilson moved an amendment that the House relied on the Commission to proceed with its work as quickly as possible and to consider the issue of an interim report on the more urgent questions, including the rates of compensation. The House would stultify the Commission if it proceeded forthwith to deal with one side only of the question by legislation. Full payment for all costs of medical rehabilitation was the rule in most of the great industrial countries with which we were in active competition. The necessity for it was indicated by Dr D. C. Norris, chief medical officer of the Bank of England, in the "Encyclopædia of Medical Practice."

"In Great Britain," said Dr Norris, "employers as such are under no legal obligation to provide or pay for treatment Recovery is often retarded because the workman is unable to obtain sufficient food or to pay for treatment out of his compensation money."

The important thing was not to give every workman more cash compensation, irrespective of his accident or family or marital condition, as the Labour Party had suggested in successive bills, but to provide for complete medical treatment free of cost Although employers and workmen paid for national health insurance an injured workman could not draw any cash benefit at all; he could draw nothing but medical benefit. He might need convalescent treatment, artificial limbs, crutches, a wheel-chair, X-ray therapy. or massage, but if he could not get them from some charitable society he could not get them at all, unless he could pay for them, which was usually impossible —Mr. G Lloyd, Under-Secretary, Home Office, replying for the Government, said that it was ridiculous to try to deal with the complicated question of workmen's compensation by attemp an immediate solution of a particular part of the problem without waiting for the result of the Royal Commission's investigation. The motion was negatived by 135 votes to 134.

QUESTION TIME

WEDNESDAY, FEB. 8

Medical Examination of R.A.F. Apprentices

Mr. Kirby asked the Secretary of State for Air whether he was aware that applicants for apprenticeships in the Royal Air Force were given medical and educational examinations near their homes, and if such were successfully passed they were then required to proceed to Halton or West Drayton for further examinations, that this sometimes necessitated the applicants relinquishing their employment, and if they were unsuccessful in the later examinations they found themselves deprived of their former employment as a result of their effort to serve King and Country; and could he so arrange final examinations as to avoid applicants having to give up their employment before being accepted for service.—Sir Kingsley Wood replied I am aware of the difficulty to which the hon Member refers and steps are taken to overcome it as far as practicable All candidates are advised to have a preliminary medical examination at home which many local education authorities are willing to arrange This preliminary examination is arranged with a view to minimising the risk of subsequent rejection, but it will be appreciated that it does not remove the necessity for an official medical examination of all candidates It is not practicable, for many reasons, to arrange a wide distribution of Royal Air Force medical boards for the purpose of examining candidates near their homes A medical board has been set up in Scotland order to relieve Scottish candidates of the necessity of travelling to England for the sole purpose of medical examinations

Malnutrition in Fernando Po

Dr **HADEN GUEST** asked the Secretary of State for the lonies whether he was aware that among a party of 75 ritish subjects recently returning from the Spanish land of Fernando Po to Calabar in Nigeria, after a period labour on the cocoa plantations, one person was found ead of starvation, three were found so ill from starvation to require a fortnight's treatment in hospital, and the mainder were in a serious condition of neglect and mal trition, and what steps had been taken to secure provement in the conditions of labour contracts entered to by British subjects in Fernando Po —Mr **MALCOLM** **ACDONALD** replied I am informed that three cases of eath due to asthenia occurred about a year ago among persons who returned to Calabar from Fernando Po in ery poor physical condition Since that date an improveent has been reported in the treatment of labour in ernando Po Representations have been made by the ritish vice consul in Santa Isabel concerning the position labourers from Nigeria and an assurance has been given y the governor general of Fernando Po that it was the ish of the authorities to provide for the good treatment all classes of labourers and especially of those coming om Nigeria as the local farming community was to a reat extent dependent on the latter From independent quiries which the vice-consul has been able to make it ppears that the treatment which the labourers are now ceiving has been much improved

THURSDAY, FEB 9

Cost of Living Inquiry

Miss **WILKINSON** asked the Minister of Labour when he stimates the result of the recent inquiry into the cost of ving would be available, and when it was proposed that hey would be the basis of the official index statistics.—Ir **ERNEST BROWN** replied The tabulation of the data ontained in the budgets which have been collected by neans of this inquiry is proceeding as rapidly as possible, ut I regret that I am not yet in a position to state by hat date statistics summarising the information obtained ill be ready for publication The revision of the basis f the cost of living index cannot be undertaken until a ummary of the results of the inquiry is available As I ave previously stated over 60,000 budgets giving par iculars of full weekly expenditure, and over 150 000 eturns of weekly expenditure on clothing, have been ollected The examination and tabulation of this naterial is a task of great magnitude, but every effort is eing made to expedite the progress of the work with a iew to the publication of the results of the inquiry at the arliest possible date

Diphtheria Immunisation

Captain **ELLISTON** asked the Minister of Health whether is attention had been drawn to the campaign against iphtheria immunisation, and whether he would issue ome statement in support of local health authorities who invited the public to accept this effective protection against a dangerous disease —Mr **ELLIOT** replied I am aware that there is a body of opinion in the country which is opposed to inoculation in all forms A memorandum on the production of artificial immunity against diphtheria was issued by my department in 1932, and the question of its reissue in a revised form is receiving consideration Attention has also been drawn to the value of diphtheria immunisation in recent reports of the chief medical officer of the Ministry

Mentally Defective Children in Kent

Mrs **ADAMSON** asked the Minister of Health whether he was aware of the inadequate accommodation provided by the Kent county council for mentally defective children, and that at a recent meeting the Dartford and district guardians committee because of numerous complaints requested the Kent county council to provide extra facilities for such children in north west Kent, and whether he would take the matter up with the Kent county council so that suitable provision for this rapidly growing area might be made —Mr **ELLIOT** replied Yes, sir The Board of Control have for some time been in communication with the Kent county council on the need for further accommodation for mental defectives, especially children now in public assistance institutions I am informed that the extensions at Leybourne Grange *mental-deficiency colony* are being expedited, with the result that two villas for children are expected to be ready during the coming summer

MONDAY, FEB 13

Government Camps for Civilians

Sir **ARCHIBALD SOUTHBY** asked the Lord Privy Seal whether he was in a position to make any announcement with regard to the provision of camps by the Government for civilian use

Sir **JOHN ANDERSON** Yes, Sir It has been decided to introduce legislation at an early date providing for the establishment of public corporations, profit barred—one for England and Wales and one for Scotland—which would be empowered to construct and manage camps The Chancellor of the Exchequer has agreed to make available a sum of £1,000,000 with which, if Parliament approves, a start will be made on a programme of 50 camps each designed to accommodate about 350 They would be hutted camps and would be a useful supplement to billeting under any evacuation scheme in the event of war Their main peace time purpose would be to serve as school camps taking children from urban areas in relays The corporations will be required to aim at recovering, in respect of the peace time use of the camps, 50 per cent of the capital—in addition of course, to meeting all their maintenance charges A bill is being drafted and will be introduced as soon as possible Pending its enactment preliminary steps are at once being taken for the selection of a sufficient number of suitable sites

Advertisements of Cancer Treatment

Mr **LEACH** asked the Minister of Health whether he would consider supplying, in a parliamentary paper, the information in the possession of his department as to the extent to which advertisements offering to treat persons for cancer were inserted in the public press, and cases of cancer were receiving treatment by irregular practitioners of medicine —Mr **BERNAYS** replied The information in the possession of my department is that advertisements offering to treat persons for cancer are now seldom or never inserted in the public press My right hon friend has no detailed information as to the extent to which cases of cancer are receiving treatment by irregular practitioners

Supplies of Strychnine to Farmers

Mr **HOPKIN** asked the Minister of Agriculture if his attention had been drawn to the enormous damage done to land in West Wales by moles and to the high charges made for substitutes for strychnine, making the use of such substitutes almost prohibitive to farmers, and would he take steps to enable farmers to procure sufficient quantities of strychnine to clear the moles from their land —Sir **R DORMAN SMITH** replied A complaint has recently been received from one farmer in West Wales about the damage caused by moles and the high cost of substitute for strychnine used in the destruction of moles The view hitherto held by my department is that red squill, which can be obtained easily and cheaply and is comparatively harmless to other animals is an effective substitute but I am arranging for field experiments to be undertaken to test the effectiveness of this and other substitutes for strychnine I should not feel justified in asking the Poisons Board to recommend the relaxation of the present rule with a view of enabling farmers to obtain strychnine for mole destruction

TUESDAY, FEB 14

Emergency Hospitals in War-time

Sir **GIFFORD FOX** asked the Secretary of State for War if he could now make a statement as to the result of his consultation with other interested departments as to the acceptance or refusal of offers of buildings for emergency hospitals in time of war; and whether he would state which these departments were and also ultimate [illegible] on acceptance or refusal —Mr. HORE-BELISHA replied: The limited number of the buildings in question which appear suitable will be inspected The buildings which, after inspection, are found suitable will be notified to the Ministry of Health or the Department of Health for Scotland and the Office of Works, and, subject to their agreement, will be earmarked In the case of buildings found not to be suitable for the War Office, the suggestion is made that the offers might be renewed to the Ministry of Health or the Department of Health for Scotland My hon friend will understand that the War Office is providing its own basic requirements for hospital accommodation independently of these offers

Conditions in Coastal Ships

Mr. BEN SMITH asked the President of the Board of Trade, whether his attention had been drawn to the annual report of the Port of London medical officer of health 1937, in which reference was made to unhygienic accommodation, inadequate provision for the storage of food, cramped living quarters, excessive hours of work and other unsatisfactory conditions, on vessels engaged in the coasting trade, and whether, in the interests of health and hygiene, he proposed to initiate remedial action —Mr OLIVER STANLEY replied I have seen the report The general conditions of service in the coasting trade, as in other parts of the mercantile marine, are primarily matters for the National Maritime Board, on which employers and employed are represented As regards crew accommodation, a very satisfactory standard for new ships was established by the revised instructions of 1937 Every effort is being made to bring the older ships as far as practicable up to a similar standard Close contact in this matter is maintained between the Board of Trade surveyors and the port health officers, and steady progress is being made

MEDICAL NEWS

University of Cambridge

Sir Henry Dale, F.R.S, director of the National Institute for Medical Research, has been elected an hon fellow of Trinity College.

Titles of the degrees of M B, B Chir have been conferred on E F. Graham Kerr, J M E Hannaford, and M. Lloyd; and of M B on D. K Souper.

At recent examinations the following candidates were successful —

DMRE

Part I—H. N. Bhatt, R B Boal, J. P Bostock, A. H. Brockbank, F. M Crawshaw, J. A G Hair, W G S Harden,* Charles Harris, T M Hennebry,* E C Hicks, C W Horncastle, K A Kassem, C F MacGuire, S. A. Maddocks, H M Marks, R T Marshall, M P. G O'Brien, G F Rees-Jones,* Zoe C. Rutherford, Eric Samuel, Ida B. S Scudder, K V. Shetty, J. L Treneman, A C R Wakeman,* and A. B Wayte

* Awarded distinction

University of London

The following have been appointed staff examiners for medical degrees for 1939 .—

Anatomy—Prof C M West and Prof T Nicol

Applied Pharmacology and Therapeutics—Prof A J Clark, F R S, Dr Philip Hamill, Prof F R Fraser, and Dr C E Lakin

Forensic Medicine and Hygiene—Dr J H Ryffel, Dr. W H Grace, Dr G F Buchan, and Sir William Jameson

Medicine—Sir Charles Wilson, Prof W H Wynn, Dr C M Hinds Howell, and Prof O. L V de Wesselow, Dr E A Cockayne, Dr K Shirley Smith, Dr K E Harris, and Prof C B Perry (associate examiners)

M D Hygiene—Sir William Savage and Prof M Greenwood, F R S, Dr William Gunn (additional examiner)

Neurology—Dr Macdonald Critchley and Dr Anthony Feiling

Obstetrics and Gynæcology—Mr Frank Cook, Prof J McGibbon, Dr J M Wyatt, Mr F W Roques, and (if required) Mr Alan Brews; Mr Malcolm Donaldson, Mr D H MacLeod, Mr J W Burns, Prof Amy Fleming, and (if required) Mr A Goodwin (associate examiners)

Ophthalmology—Mr C B Goulden and Mr R Foster Moore

Oto-rhino-laryngology—Mr W G. Howarth and Dr Douglas Guthrie

Pathology—Prof J Shaw Dunn and Prof W W C Topley, F R S, Prof J H Dible and Dr. R W Scarff (associate examiners)

Pharmacology—Prof W J Dilling and Dr V J Woolley

Physiology—Prof H P Gilding and Prof Winifred Cullis, D Sc

Psychological Medicine—Dr R D Gillespie and Dr N G Harris

Surgery—Prof P T Crymble, Mr C Jennings Marshall, Mr C E Shattock, Mr C W G Bryan, and (if required) Mr Julian Taylor, Mr R H Boggon, Mr Stanford Cade, Prof S G Barling, Mr J P Hosford, and (if required) Mr Nils Eckhoff (associate examiners)

Tropical Medicine—Dr N Hamilton Fairley

The following examiners for academic diplomas have been appointed .—

Bacteriology—Prof H Raistrick, F R S, Prof W W C. Topley, F R S, Prof G S Wilson, and Prof S P Bedson, F R S

Medical Radiology—Part I Prof F L Hopwood, D Sc, Mr W V Mayneord, or failing him, Mr H T Flint, D Sc, and Prof E A Owen, D Sc Part II: Dr Douglas Webster, Dr H Courtney Gage, and Dr R S Paterson

University of Sheffield

Dr R S Kennedy, medical superintendent of the South Yorkshire Mental Hospital, has been appointed lecturer in mental diseases in the university

University of Manchester

Mr. Gordon Ashcroft has been appointed clinical lecturer in oral surgery and Dr Robert Newton, assistant lecturer in obstetrics and gynæcology

Royal College of Surgeons of England

At a meeting of the council held on Feb 10, with Mr. Hugh Lett, the president, in the chair, Dr Royal Whitman of New York was admitted to the honorary fellowship of the college

At the recent primary examination for the fellowship held in Cairo, 10 out of 27 candidates were approved

It was reported that Prof René Leriche of Strasbourg would deliver the Lister memorial lecture on Wednesday April 5

A diploma of fellowship was granted to Herbert Cecil Perera Gunewardene (Ceylon and St. Bart's) and diplomas of membership were granted to F T Birkinshaw (Birmingham and Univ Coll), Harry Harris (West London), J. J. H Lowe (Durh), and to those candidates mentioned as receiving the licence of the Royal College of Physicians in our issue of Feb 4, p 302 Diplomas in public health, tropical medicine and hygiene, and anæsthetics were granted to the candidates mentioned on the same page. Diplomas in medical radiology were also granted, jointly with the Royal College of Physicians, to G. A Ann Martin Israelski, F H Kemp, and John French

Royal College of Physicians of Edinburgh

A quarterly meeting of the college was held on Feb. 1 with Dr Alexander Goodall, the president, in the chair. Dr Ernest Chalmers Fahmy (Edinburgh), Dr Ian Dalgleish Easton (Edinburgh) and Dr James Gilbert Murdoch Hamilton (Edinburgh) were introduced and took their seat as fellows of the college Dr John Gordon Kininmonth (Edinburgh) and Dr Alex. Colin Patton Campbell (Edinburgh) were elected to the fellowship

Dr. Henry Yellowlees was appointed the Morison lecturer for 1939

Royal Institute of Public Health and Hygiene

Mr. Walter Elliot, the Minister of Health, will preside over the public health congress to be held by the institute at Hastings from May 23 to 27.

Society of Public Analysts

The annual meeting of this society will be held on Friday, March 3, at 5 P M, at the Institute of Chemistry, 30, Russell Square, London, W.C 1. At 6 P.M Sir Henry Dale, F R S, will give an address on biological standardisation

Royal Statistical Society

The council offer the Frances Wood prize, which is of the value of £30, for competition in 1939 It will be awarded for the best investigation, on statistical lines, of any problem affecting the economic or social conditions of the people Further information may be had from the hon secretaries of the society, 4, Portugal Street, London, W C 2

Lectures on Sex Education

Prof Winifred Cullis, D Sc, will deliver the Christine Murrell lecture at the Sieff Hall, Salisbury Street, London, N W 8, on March 6 at 5 P M The lecture will be an introduction to four lectures on problems of sex education to be given by Dr Doris Mart on March 13, 20, 27, and April 3 at 5 30 P M Further particulars may be had from the hon organiser, 2, Abbey Road Mansions, N W 8

Hospital Almoners' Association

The annual dinner of the association took place on Feb 11, when Miss Warren, chairman of the association, presided In proposing the toast of The Association, Sir Arthur MacNalty said that a striking feature of the modern outlook on disease was the public recognition of the social and economic effects which follow in its train For disease was no longer purely a matter of medical significance and relegated entirely to the physician and the surgeon, and the great advances made in the diagnosis and treatment of disease would too often prove to be Cadmean victories, unless the sociological side of the patient received attention The almoner's work was of cardinal importance in making medical treatment successful, for it was of no use to heal a patient and then to throw him back into the difficulties and conditions which favoured his ill health Mr E C Bligh, the chief officer of public assistance to the London County Council, who replied to the toast of The Guests, emphasised the increase in the numbers of qualified almoners employed in municipal hospitals

Hunterian Society Annual Dinner

Mr Andrew McAllister presided at the annual dinner of the Hunterian Society held at the May Fair Hotel on Feb 9 to commemorate the 211th birthday of John Hunter Proposing The Hunterian Society, Sir Arthur MacNalty said that the society, founded in 1819, had an honourable and distinguished record of service to the progress of medicine Hunter would have desired no better memorial He might well, if he had been present and seen the ladies, have declared "I should have been informed of this kick up!", but a few minutes would have convinced him that their presence added charm to the proceedings It was desirable that the private medical practitioner should retain his individuality, and that the principle of free choice of doctor and the confidential relationship of doctor and patient should remain undisturbed Replying, the President said the membership was 337—not quite a record, but satisfactory Prof L S Monckton Copeman had been made an honorary fellow in recognition of his great services to science and public health The gold medal of the society had been awarded to Dr J E Outhwaite of Leeds, for his essay on the treatment of inoperable carcinoma in general practice, which he had identified by the motto "Pereunt et imputantur" Amid acclamation, the President presented the medal to Dr Outhwaite Dr Kenneth McFadyean who proposed the health of The Lord Mayor and the Corporation of the City of London wished his Lordship a speedy recovery in health and thanked him for sending the Lady Mayoress as his representative He observed that an institution as ancient and stable as that of the mayoralty of the City demanded especially in the present day, an instant loyalty Its stability was largely due to the democratic system by which the mayor and corporation were elected yearly and which had been founded, curiously enough, by the tyrannical King John He regretted that the Lord Mayor's Show had not since 1851 been held on the river and hoped the day would come when as before English summer skies would look down on that splendid pageant Sir Girling Ball proposed The Guests and Kindred Societies He recalled the days soon after the late war when the members of the society could be numbered on one hand and it had nearly ceased to exist, and said that nothing gave him greater pleasure than its tremendous success Prof Fletcher Shaw in reply, said he was representing the Royal College of Obstetricians and Gynæcologists for the first time since it had received the royal title The society must have been formed by many men who had personal connexions with Hunter Tradition was a great factor in professional life, and he hoped that his college, new as it was, would have its foundations laid so well that future generations would think them worthy to be held as traditions Mr R de la Bere, M P, also replied

National Nursing Need

Queen Mary attended a meeting for the recruitment of nurses at the Guildhall on Feb 11 to hear the Archbishop of Canterbury read her message appealing to the young women of the country "to ask themselves whether they may not find in this great profession not only a career of interest and usefulness but one of the truest and noblest forms of national service" Mr H L Eason, F R C S, principal of the University of London, said that the medical profession needed the help of nurses more and more, for surgical and medical treatment was getting more complex, and more after treatment was required Today there was only about one nurse to every 500 of the population and more than that was required to look after the public needs Miss Reynolds, matron of the London Hospital, Miss Merry, London inspector of the Queen's Institute of District Nursing Miss Hayter of the London County Council nursing service, and Miss Helen Few, a student nurse at the London Hospital, each described a different aspect of the nurse's life and stressed the scope of the profession and the many forms of satisfying service which it offered

Some 1500 schoolgirls and members of youth organisations from all over the country were present, and an overflow meeting over which Mr H S Souttar presided was held in the council chamber

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED FEB 4, 1939

Notifications—The following cases of infectious disease were notified during the week Smallpox, 0; scarlet fever, 1690, diphtheria, 1241, enteric fever, 20 (38 "expected"), pneumonia (primary or influenzal), 1435, puerperal pyrexia, 151; cerebrospinal fever, 37, acute poliomyelitis, 8, acute polio-encephalitis, 3, encephalitis lethargica, 4, dysentery, 19, ophthalmia neonatorum, 104 No case of cholera, plague or typhus fever was notified during the week

The number of cases in the Infectious Hospitals of the London County Council on Feb. 10 was 3258 which included scarlet fever, 629; diphtheria 912 (carriers, 48), measles 2, whooping-cough, 769 puerperal fever 21 mothers (plus 14 babies) encephalitis lethargica, 301 poliomyelitis, 3 At St Margaret's Hospital there were 27 babies (plus 13 mothers) with ophthalmia neonatorum

Deaths—In 126 great towns, including London there was no death from smallpox 3 (0) from enteric fever 1 (0) from measles, 1 (0) from scarlet fever, 22 (4) from whooping-cough, 33 (7) from diphtheria, 65 (21) from diarrhœa and enteritis under two years, and 210 (26) from influenza The figures in parentheses are those for London itself

Of the 210 deaths attributed to influenza 53 were reported from the South-eastern Area 117 from the Northern Area Manchester contributing 19 Bolton and Preston each 6, Oldham, Southport and Sheffield each 5 and 25 from the Midland Area Bristol contributing 5 Lincoln and Exeter each reported 4 Fatal cases of diphtheria were scattered over 18 great towns Liverpool and Middlesbrough each reporting 3 [illegible] had 2 deaths from measles Birmingham 5 from whooping-cough East Ham Manchester and Sheffield reported deaths from enteric fever

The number of stillbirths notified during the week was 227 (corresponding to a rate of 37 per 1000 total births), including 30 in London

OBITUARY

CHARLES CYRIL OKELL

M.C., M.B., SC.D. CAMB., F.R.C.P.

Dr. C. C. Okell died at Chesterton, near Cambridge, on Feb. 8 at the early age of 50. A premature retirement from active work had followed a long and painful malady; but he was still exerting an influence that can ill be spared

Born in the Isle of Man, elder son of C. P. Okell, he was educated at Douglas grammar school and St John's College, Cambridge, going on to St. Bartholomew's Hospital where he won the Hichens and Wix prizes and the Brackenbury scholarship in medicine. The war came when he was near qualification and he stayed to fill a house-surgeonship before taking a commission in the R.A.M.C He served with distinction in France, Palestine and Egypt, and was awarded the Military Cross. When the war was over he turned to the laboratory in preference to the wards and joined the staff of the Wellcome Physiological Research Laboratories. Here the work, in collaboration with others, suited him well, for he was by nature sociable and enjoyed discussing what he was doing. The quantitative methods demanded in the assay of immunological reagents suited his clear and critical mind, and in after years he often stressed the value of such a discipline to the bacteriological investigator. With his colleagues at the Wellcome laboratories he played a large part in the development in this country of prophylactic immunisation against diphtheria and scarlet fever, and helped to maintain the tradition that work of this kind, whether in the laboratory or in the field, demands the same critical approach, the same careful checking of results, and the same striving after fuller knowledge and improved technique as any other scientific activity. During this period he published many papers, some alone but mainly in association with one or more of his colleagues, and particularly with H. J. Parish These include studies on the relation of virulent to avirulent diphtheria bacilli, on the technique of virulence testing, on the titration of scarlatinal antitoxin and of tuberculin, and field studies on the duration of the Schick-negative state, on the occasional occurrence of diphtheria in Schick-negative reactors, and on the most effective method for the rapid control of diphtheria in residential schools With A. T. Glenny he examined the Ramon flocculation test for diphtheria antitoxin, and with Hindle and others he essayed the possibility of vaccination against yellow fever. He also described, in collaboration with Dalling and Pugh, the occurrence of leptospiral jaundice in dogs

[Lafayette

In 1920 Okell was appointed to the chair of bacteriology at University College Hospital. He took to the new life at once, and proved his fitness for it He was an admirable teacher, and felt the stimulus of contact with young and active minds He had the gift of expounding a difficult subject clearly, without false simplification, and of synthesising a mass of facts and observations into a coherent picture which, however tentative it might be, gave precision to further inquiry. An example of his skill in this direction is afforded by his Milroy lectures, delivered before the Royal College of Physicians in 19[illegible] Though teaching and administrative duties took much of his time and thought he never abandoned research, and he continued to prove his ability to select significant problems, and to solve them. His papers with T. R. Elliott on the transient bacteræmia that follows the extraction of septic teeth, and on the frequency of cross-infection with streptococci in hospital wards, are contributions of the first importance to our knowledge of the mechanisms of infection in man.

Okell's interests were very wide, and he had a lively as well as an able mind. He had a scholar's knowledge of his own subject, and a reader's knowledge of much that lay outside it From his [illegible] days he was keenly interested in Anglo-Saxon [illegible] medieval literature and he made himself an [illegible] on Marlowe and his contemporaries His [illegible] venture as an author was a delightful little "H[illegible] of Fine Linen," written for one of the big drapers when he was a medical student. He had a [illegible] gift for writing, and in his latter years did [illegible] literary work. He was for some years assistant editor of the *Journal of Pathology and Bacteriology* and at the time of his death he was editor of [illegible] *Journal of Hygiene*. The last four years of his [illegible] were shadowed by a progressive arthritis which gradually rendered active work impossible. Those who had the privilege of knowing him will never forget the example of quiet and steady courage that he gave After a period of almost complete invalidity which compelled him to resign his chair in L[illegible] he moved to Cambridge in 1937. In addition to his literary and editorial work he was beginning, at the time of his death, to take an increasing part in the supervision of Cambridge medical students, who came to him at his house at Chesterton. They gained much from his wide knowledge and experience and it delighted him to talk of the things he knew and loved to young men who had more time for those than the overpressed medical students in the London hospitals

Throughout his life Okell acted on the principle that science, including medical science, is one and indivisible He held academic research in high respect, and at times displayed a natural leaning towards attacking a problem as an end in itself, apart from its practical applications But he gave equal rank to accurate clinical observation, and to careful and critical studies in the field of public health. So far as his own subject was concerned, he regarded the problems that faced him at Langley Court, or in Gower Street, as research work having exactly the same general value, and subject to exactly the same general standards, as the investigations of his more academic colleagues; and he showed that adherence to these standards yielded significant results in the field of applied bacteriology as surely as in the more exact sciences.

Medical science is the poorer by his death, and his many friends have suffered a personal loss the end a visit to him, or a letter from him, was a stimulus as well as a pleasure

Dr Okell married in 1917 Dorothy Gladys, younger daughter of Mr W O Roberts of Loughborough, who survives him with two daughters

ARTHUR SMITHELLS

C M G , D SC , F R S

Prof Smithells, who died in London on Feb 8 at the age of 78, was from 1885 to 1923 professor of chemistry in Leeds and was the means of initiating many generations of medical students in the scientific outlook In later years when he became director of the Salters' Institute he continued in London to exert the same kind of influence, for it was his duty to find young scientific men of promise to train for posts in the chemical industries The following appreciation is from one who worked with him in Leeds for over forty years "Some of us still remember a professor who startled a class after the vacation with his new Viking beard In 1884, in the chemistry lecture theatre of the Yorkshire College, the little professor stood just above the lecture desk, in 1885 the new professor, Arthur Smithells, then only twenty five, stood commandingly above it Commandingly—that first impression, maturing with the years, of height, handsomeness and personality, remains with all who remember Smithells Some former students may still recall how they *did* frisk it many lectures and did *not* frisk with him

"Smithells's personality and his capacity to handle classes did not by themselves draw the spontaneous 'let us go to see Smithells' from former students when they revisited the Yorkshire College (or its lineal descendant, Leeds University) but Smithells also believed, with Baltasar Gracian, that friendship is a second life Always accessible to all, he was interested in his students both when he was their teacher and afterwards when he was not His professorship of thirty eight years helped him to maintain this interest, for he often taught both father and son

"At a social gathering a young lady was surprised because Smithells did not probe the thermal efficiencies, or inefficiencies, of the Hostel His students had to learn that his concern for them did not end with enlightenment on Avogadro's Principle or on the scientific spirit in Pasteur, but they soon did learn tea, tennis and other social amenities at the professor's own house often helped the learning Smithells also guided many students along their postgraduate careers

"He brought with him one friendly feud when he came to Leeds He was born *in Lancashire*, he was interested in cricket and—he was in Yorkshire the friendly gibe that he came to Yorkshire ostensibly to teach chemistry, but in fact to learn how cricket should be played, did not dim his interest in university athletics or leave that interest unappreciated

"Smithells, who always interested himself in the teaching of chemistry, carefully considered his own lectures When he established a separate course for medical students he anxiously planned it so that they should benefit fully without any retrospective resentment over what they had been compelled to learn He carefully designed the laboratory courses for medical students, as he did for all, he also used experimental demonstration freely in his lectures. Nature withholds manipulative skill from some Smithells himself referred to the only man in Yorkshire who could pour sulphuric acid on blue litmus without turning it red. At his own lectures flames anatomised r turned inside out, substances phosphoresced, and phosphorus glowed or did not glow, just as they should, without any need to correct the eye of sense by the eye of faith

"And finally Smithells was a sound judge of men, and when he entrusted a task he gave his full confidence He tried to keep the various departments of science, including medicine, in touch The age has separated university science into departmental societies Smithells did not finally secure one scientific society for all departments of science in common, but he has left behind him a great impression of professional attainments, friendliness and personality"

THOMAS FREEMAN LONG

M R C S , J P

AFTER a long illness Dr Long died at Chesham on Jan 20 at the age of 69 He had been in general practice in the town for over forty years and had played a leading part in its public life Born at Maidstone he did his medical training at the Middlesex Hospital, qualifying in 1894 Soon after qualification he started practice at Chesham, at first on his own and later with H. L Cunningham He was part time medical officer of health for the district and a magistrate of many years' standing He was keenly interested in first aid and was mainly responsible for founding the Chesham division of the St John Ambulance, for his services as divisional surgeon he was made an honorary associate of the Order of St John of Jerusalem on his retirement Dr Long had seen most of the people of Chesham grow up He was a familiar figure at their cricket and football matches and a source of sound opinions at their committee meetings His kindness and sympathy will be greatly missed

THE LANCET 100 YEARS AGO

February 16, 1839, *p* 748

From a lecture on the blood delivered at the College of France by Monsieur Magendie

But, you will say, must we then prohibit venesection in pleurisy, in pneumonia, &c , and, if we refuse to employ it in such cases, what treatment is to be adopted in its room ? Gentlemen, I will state to you with fidelity my convictions on this point If bleeding be advised, because it relieves the patient, diminishes the oppression he feels, soothes his pain , and, finally, because patients habitually recover by, or rather after the use of this remedial agent, then, empiric as I am, I admit that we are justified in having recourse to it nevertheless I must, at the same time, declare that I cannot conscientiously affirm, in the majority of cases, that the malady would not have gone through its periods, and reached a fortunate termination, had venesection not been employed. And my doubts on this head are strengthened by the fact that if, instead of weakening your patient, you support his physical and moral strength, and, watching the disease closely in all its phases promote the occurrence of favourable crises, and assist Nature (by directing abstinence from solids, and the use of diluents) in overcoming the obstacles she encounters, you frequently see rapid recoveries occur, more rapid even than those witnessed as the sequence of abundant and repeated bloodletting

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THE Index and Title page to Vol II 1938 which was completed with the issue of Dec 31, is now ready. A copy will be sent gratis to subscribers on receipt of a postcard addressed to the Manager of THE LANCET, 7, Adam Street, Adelphi, W C.2. Subscribers who have not already indicated their desire to receive indexes regularly as published should do so now

MEDICAL MOBILISATION

On Wednesday the Minister of Health outlined the plans for the organisation of medical services in time of war to a meeting of representatives of the profession at B.M A. House Linked with the regional commissioner's office in each of the twelve regions into which the country is being divided for purposes of civil defence would be the regional headquarters of each of the Government departments responsible for emergency services The Ministry of Health would thus have a local staff under a senior officer, with a principal medical officer to supervise all the medical services in that area The medical staff would see that supplies of bedsteads, bedding, dressings, drugs, and other medicaments were available for the medical needs of the regional population

Mr. Elliot said that there are too many uncertain factors in the situation to make possible a cut and dried scheme to include all doctors. Nevertheless, it is proposed with the aid of the central and local emergency committees of the B M.A. to earmark as many medical practitioners as possible for certain classes of work for which their services seem likely to be required in the earlier stages of a war For this purpose doctors can be divided into five groups:

(1) Those who would give full-time service in His Majesty's forces.

(2) Those who would be required for the hospital services either immediately or in reserve (this would include those required for the maintenance of medical education).

(3) Those who would control the first-aid posts.

(4) Medical officers of Government departments and local authorities.

(5) Those who would constitute the medical boards for examining recruits.

There would remain a number of general practitioners upon whom would devolve the responsibility of maintaining the essential services for the civilian population.

As regards the first group the central emergency committee is engaged in determining the quota to be provided by each local committee When these quotas have been determined the local committees will be asked to suggest the names of the practitioners who should be released for whole-time service with the forces Practitioners will be consulted before their names are sent in. The second group will consist of practitioners already on the staff of hospitals or having special qualifications for taking up hospital work arising out of air-raid casualties In this connexion Mr Elliot said it was intended to remove casualties as soon as possible from the large towns to hospitals in relatively safe situations The X-ray and other therapeutic equipment of the large town hospitals would be moved before the outbreak of war, or soon after, together with as many as possible of the medical and nursing personnel As to the first-aid posts, in addition to existing medical units which could be converted with their staffs for use as such posts in an emergency, there would be about 1000 fixed or mobile first-aid posts for which medical practitioners would have to be provided, and some at least of which would need more than one doctor. Thus about 2000 doctors not already attached to existing units will have to be earmarked for this purpose The doctors will have to give some collective training to the nursing staffs of the posts in peace-time, but generally speaking service at the posts would not take doctors away from their practices. The fourth and fifth groups represent branches of service for which medical personnel would have to be retained. War conditions would throw a great burden upon medical officers of health and the movement of children from the more congested areas under the evacuation scheme would throw additional responsibilities upon the public health staffs in the reception areas.

Practitioners engaged whole time in the civilian casualty service would be paid at rates comparable to those they would receive if they had entered the R A M C. Although they would be employed and paid by the local authority or hospital concerned, the Government intended to reimburse the authority or hospital for the extra expense involved, and recognised for this purpose a scale of salaries which for the ordinary medical man would be similar to that of a captain in the R A M C, with a higher rate for specialists or those with special responsibility. Doctors serving at first-aid posts would be paid at the rate of one and a half guineas for two hours, and three guineas for a longer period In peace time the practitioners selected to control the first aid posts would receive a retaining fee from the local authority to cover their services in training nursing personnel

THE HUNTERIAN FESTIVAL

On Tuesday the Royal College of Surgeons of England held its biennial celebration of the life and work of John Hunter, who was born on Feb 14 1728 In the afternoon Mr. W. Sampson Handley delivered the oration entitled "Makers of John Hunter" which appears at the front of this issue and in the evening the festival dinner was held in the library of the college Mr. Hugh Lett, the president was supported by Prof Grey Turner and Prof. R E Kelly, vice-presidents, in receiving the guests, whom were :—

The Archbishop of Canterbury, the Earl of A Viscount Hambleden, Lord Roche (treasurer of the Inner Temple), Lord Atkin, Sir William Goschen, Sir Ernest Fass (public trustee), Councillor G F Jerdein (mayor of Westminster), Very Rev. Paul de Labilliere (dean of Westminster), Sir Holman Gregory (recorder of the City of London), and Mr Selskar M. Gunn (president of the Rockefeller Foundation).

Lord Dawson, Sir Farquhar Buzzard (regius professor of medicine in the University of Oxford), Sir Arthur MacNalty (chief medical officer to the Ministry of Health), Sir Humphry Rolleston (chairman of the executive committee of the Imperial Cancer Research Fund), Sir John Megaw (medical adviser to the India Office), Sir Frederick Menzies (medical officer of health to the London County Council), Sir Edward Mellanby, F.R S (secretary of the Medical Research Council), Lieutenant-General W. P. MacArthur (director-general of the Army Medical Services), Mr. H L Eason (principal of the University of London), and Air-Commodore A. V. J. Richardson (director of medical services of the Royal Air Force).

In proposing "The Memory of John Hunter" (which was honoured in silence) Mr. Lett spoke of Hunter as one who by his genius brought science to surgery which was then only an art and craft. The story of his boyhood, he said, foreshadows the greatness of the work he accomplished as a man. It tells us of his ceaseless interest in beasts and birds, in insects, trees and flowers, of his burning enthusiasm for the study of nature, and of his constant search for the discovery of her secrets that ended only with his life He was the first among the great comparative anatomists to show the gradations between the simplest and most complex forms of animal existence, to demonstrate the gradual development from the lowest to the highest forms of life, and to bring the anatomical variations in them all into one great ordered scheme For him it was but a short step from anatomy to pathology, to attempt to discover within the body the changes that give rise to disturbing symptoms and disordered functions He could not tolerate vague theories or treatment that was founded on tradition—he tried to find a reasonable ground of fact When in his dissections he could not find the answers that he sought, he went still further and carried out experiments even on himself His thirst for knowledge was unquenchable and his energy amazing At the time of his death there were in his museum no less than 13,682 specimens

After describing some aspects of this great collection Mr Lett quoted the famous sentence in Hunter's letter to Jenner, "Don t think—try" The college, he said, had taken these words as its motto in its efforts to develop biological research and thus throw light on some of the many problems that are still unsolved Over a hundred years ago Sir Benjamin Brodie had predicted that there would be established in the college a school that might be called "the science of life" He prophesied that great practical results would be obtained which would convict those of ignorance and error who thought that physiological research and a scientific view of disease were of little importance to the practical physician and surgeon Now the college had its research laboratories and its research farm at which results of great practical importance had already been obtained But apart from these the laboratories had a special value in the opportunities they offered to young surgeons in the scientific approach to surgical problems, in accuracy and observation, and in the latest developments in surgery Great would have been John Hunter's delight, said Mr Lett, if he could have seen the splendid results of the work that has been done for certain forms of heart disease how tissue grafted on to the surface of the heart gives new arteries for old and brings a fresh supply of blood to the muscle of its walls

Mr Lett concluded with a few words about the library The great advances that have been made in every branch of medicine and surgery during the last fifty years, he said, had been attended by an ever increasing flow of printed matter Periodicals were now so numerous that it was not possible for the college to provide a comprehensive collection of them. But if a well stocked library was of great importance to a surgeon it was vital for research The college therefore proposed to coöperate with two other important medical libraries, concentrating itself on periodicals connected with surgery and research In this way wasteful duplication would be avoided, each library would have a far larger collection of the literature of its special subjects than before, while the books and periodicals in any one of these libraries would be available to all their readers

Prof GREY TURNER proposed The Guests, exercising to the full his privilege as senior vice president, and disclosing the aim of the banquet to enlarge the influence of the college among the gentry and nobility and "among discerning people whose good opinion we covet" He was happy in his motto for the Hunterian trustees, "It is the glory of God to conceal a thing, but the honour of kings to search out a matter," and he joined in a larger group of trustees all who had a passionate desire to search out nature's secrets and improve the healing art.—Sir HUMPHRY ROLLESTON, who replied for the guests, congratulated them on their selection out of the great company of possible guests, and spoke of the college as a treasure house of biology and of medical and surgical lore He recalled former Hunterian orators and the encouragement given by the college to the younger colleges founded later

The toast of the Hunterian Orator was proposed by Mr E PEARCE GOULD, who spoke of the appropriateness of his prenomen as shown by the fact that he had for thirty years enjoyed a world wide professional recognition And we shall long remember, he said, how charmingly he carried out his task as orator this afternoon —Mr HANDLEY, in responding, remembered teaching Mr Gould to hold a scalpel, and told the story of Mary Tofts, the clothier's wife, who gave birth at Godalming in 1726 to a litter of rabbits, a claim on which contemporary medical men were sharply divided Our knowledge of biology had made good progress since then

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MEDICINE AND THE LAW

Trauma and Sarcoma

THE question as to sarcoma following an accident was considered in the Windsor county court on Feb 8 last Thomas George Odell, of Langley, Bucks, sought an award under the Workmen's Compensation Act from his employers, the National Adhesives, Ltd, of Slough, paste and gum manufacturers On Jan 2, 1932, the applicant, then 17 years of age, fell seven feet from a pile of sacks on to his left knee cap The skin was not broken He consulted his panel doctor, who treated his swollen and painful knee with iodine He remained at home for a week and then resumed work He had no further trouble until 1934, but pain in the knee then became so unbearable that he consulted his doctor again He continued work until January, 1937, with the exception of a day or two off "when the pain was bad" In this latter month he went to the Windsor Hospital, and from there, on Feb 25, 1937, he was transferred to the West London Hospital. He was then suffering from a painful swelling at the upper end of the tibia An X ray photograph was taken and sarcoma diagnosed On March 9, 1937, the left leg was amputated above the knee joint, and a pathological examination confirmed the diagnosis The patient was discharged on April 15, 1937 His claim for compensation was dated Nov 17, 1938 It was stated by his counsel that his panel doctor was unable to recall any details of the case and had no records, accordingly he could not be a witness

Mr Leslie Oliver, F R C S, attached to the London and West London hospitals, said that he saw the applicant on Feb 25, 1937, and diagnosed sarcoma Upon pathological examination it was shown that there was a good deal of bony reaction to the tumour which suggested to the witness that the tumour had taken considerable time to develop In his opinion the sarcoma had developed as a result of the 1932 injury His opinion was based on the facts that *medical authorities agreed that such* tumours followed injury, that the growth had occurred precisely at the site of the previous injury, and that it had coincided with the history given by the applicant The witness admitted that the swelling in 1932 was consistent with synovitis and that with a slow-growing sarcoma there would be some swelling and pain from the date of the injury.

Sir Bernard Spilsbury, F.R.C.P., for the employers, gave it as his opinion that the history of the case suggested synovitis due to the applicant twisting his knee on falling. The treatment adopted was consistent with such diagnosis He would have expected severe injury to the bone causing persistent pain and swelling. The length of time for the growth was extremely unusual. In his view it was a coincidence that the sarcoma had appeared near the site of the original injury The applicant had only spoken of intermittent symptoms. The sarcoma probably had taken one year to develop.

Judge Cotes-Preedy, K.C, said that in the absence of any medical history from the applicant's medical man he had only conflicting inferences from two specialists and therefore he could only conjecture what the true answer should be. The onus of proof was on the applicant and, that not having been discharged, no award could be made. Moreover the applicant had shown no reasonable cause for his failure to make a claim within six months of the accident.

Appointments

BARCLAY, I B, M R C S, D P H, D M R E, assistant radiologist at the West Middlesex County Hospital, Isleworth

BOYD, R P, M B Glasg, F.R F P S G, D P H, deputy medical officer of health and assistant tuberculosis officer for Exeter

CHESTER, A W, M B Durh, junior assistant medical officer at the Redhill County Hospital, Edgware

CROSS, A G, M B Camb, F R C S, visiting ophthalmic surgeon at the West Middlesex County Hospital, Isleworth

FROMOW, D L, M R C S, resident surgical officer at Ingham Infirmary, South Shields

GUNDERSON, R W, B Sc, M R C S, resident medical officer at the Radium Institute, London

HENRY, R E, M B Sydney, D O M S, medical officer at the children's orthoptic clinic, Royal Eye Hospital, London

MILNE, MARIAN B, M B Aberd, assistant medical officer at the County Mental Hospital, Lancaster

MOFFAT, R G, M D Manitoba, resident casualty medical officer at the Redhill County Hospital, Edgware

MORGAN, J. B S, M B Wales, D P H, deputy county medical officer of health for Derby

PATRICK, L B, M B Edin, F R C S E, M R C O G, hon. consulting gynæcologist at Rampton State Institution

PENLON-JONES, RUTH, M B. Lond, woman assistant medical officer for Rhondda

St. George's Hospital, London—The following appointments are announced —

NICHOLLS, M F, M Chir Camb, F R C S, surgeon;
RIDDELL, V H, M D. Camb, F R C S, assistant surgeon; and
DOW, JAMES, M B Camb, M R C P, resident assistant physician

Grimsby and District Hospital—The following appointments are announced —

TRUEMAN, R S, M.B Lond, F R C S E, resident surgical officer;
MOORE, W E D, M B Camb, house-physician; and
RIDDLE, R W, M R C S, junior house-surgeon and casualty officer

Colonial Medical Service—The following appointments are announced —

BARWELL, A H, M R C S, medical officer, Hong-Kong;
EDDEY, L G, M B, medical officer, West Africa;
GOODMAN, L, M R C S, medical officer, West Africa;
KERR, W. G, M B Edin, medical officer, Kenya; and
TURNBULL, N S, M B Edin, D T M & H, D P H, senior health officer, Nigeria

Examining Surgeon under the Factories Act, 1937: Dr. E. R. **LOVELL** (Knutsford District, Chester).

Vacancies

For further information refer to the advertisement columns

Albert Dock Hosp, Alnwick Road, E 16—Second res M O, at rate of £110

Barnsley, Beckett Hosp and Dispensary—H P., £150.

Bath City—M O, £500

Buxton, Devonshire Royal Hosp—Asst hon physician

Bedford County Hosp—Second H S, at rate of £150

Belfast, Queen's University—Tutor in obstetrics, £300.

Birmingham and Midland Hosp for Women—H S, at rate of £100.

Bradford, St Luke's Municipal General Hosp—H.P.'s H S.'s, each at rate of £150

Brighton, Borough Infectious Disease Hosp. and Sana Sen res M O, £450

Bristol Eye Hosp—Jun. H.S, at rate of £100.

British Postgraduate Medical School, Ducane Road, W. Res anæsthetist, at rate of £150

Cannock Urban District Council—Asst. M.O. and asst M O, £550

Canterbury, Kent and Canterbury Hosp—H.S to spec. at rate of £125

Cardiff City Mental Hosp, Whitchurch—H P, at rate of

Carlisle, Cumberland Infirmary.—H P. and two H.S at rate of £160.

Central London Ophthalmic Hosp, Judd Street, W C 1— and jun. H S 's, £120 and £100 respectively

Central London Throat, Nose, and Ear Hosp, Gray's Inn W.C 1.—Third res H.S, at rate of £75.

Charing Cross Hosp, W.C 2.—Surg reg, £150 Also to fracture clinic, at rate of £100

Chester Royal Infirmary—H P, H S, also H S to ear, throat, &c, dept, each £150

Connaught Hosp, E.17—Hon physician

Croydon County Borough—Asst M O for obstetrics,

Dorset County—Asst county M.O H, £500.

Dover, Royal Victoria Hosp—Second R M O, £140.

Dreadnought Hosp, Greenwich, S E 10—H S, at rate of Physician with charge of outpatients Also hon logist

Dublin, St Anne's Skin and Cancer Hosp., Northbrook Asst. radiologist, £300–£400.

Dudley Guest Hosp—Res. surg O, £250–£300 Also H.S.,

Ealing, King Edward Memorial Hosp—Res M O, at £275

Edinburgh City and Royal Burgh—Depute M.O H, £900.

Edmonton Borough—Asst M O.H and asst school M O.,

Exeter, Royal Devon and Exeter Hosp.—Three H.S 's and each at rate of £150.

Exeter, Wonford House—Asst. M O, £350.

Grocers' Company, Grocers' Hall, E C 2—Scholarship,

Hampstead General Hosp, Bayham Street, Camden Town, Hon clin asst. to Ophth Dept.

Hertford County Hosp—H P, at rate of £150

Hosp for Consumption and Diseases of the Chest, S W.3—Med reg, £150

Hove General Hosp—Jun. res. M O., £120.

Isleworth, West Middlesex County Hosp—Visiting ear, throat surgeon, 3 guineas per session

Kettering and District General Hosp—H P, at rate of

Kingston-upon-Thames Royal Borough—Med asst to £600.

Leicester, City General Hosp—Res M O, at rate of £300.

Leicester Royal Infirmary—Two res anæsthetists, each of £150. Also H.P 's, H S 's, and cas O 's, each of £125

Liverpool Royal Babies Hosp, Woolton—Res M O, at £125

London County Council—Asst M O 's (class I), each asst M O 's (class II), each £250

London Hosp, E 1—Asst surgeon Also res. anæsthe first asst to skin and light therapy dept, each

London Lock Hosp, 283, Harrow Road, W 9—Res M O depts, at rate of £175

London University—University chair of medicine at St. Hosp medical school, £2000 Also University dental surgery and pathology at Royal Dental Hosp,

Macclesfield General Infirmary—Second H S, at rate of

Manchester, Ancoats Hosp—Cas O, £150

Manchester, Duchess of York Hosp. for Babies—Jun. res at rate of £75

Manchester Royal Infirmary—Chief asst to neuro dept, £350.

Manchester University—Lecturer in human physiology

Margate, Royal Sea Bathing Hosp—H.S, at rate of

Middlesbrough, North Riding Infirmary—Sen H S, at £175

Middlesex County Council.—Third asst. M O. for Colony, Shenley, £365.

Nottingham City Council—Temporary physician, £15 per

Oldham County Borough—Asst school M O, £550

Oldham Royal Infirmary—H S, at rate of £175.

Plymouth, Prince of Wales's Hosp, Greenbank Road— anæsthetist and H.S to spec depts, at rate of £120 two H S 's, each at rate of £120

Plymouth, Prince of Wales's Hosp, Lockyer Street—H rate of £150

Plymouth City—Asst M O H., £500

Plymouth City General Hosp—Jun. asst M.O., £250

Port of London—Deputy M O H, £900

Prince of Wales's General Hosp, N 15—Jun H.P jun H S 's, each at rate of £90 Also Hon. asst

Queen Mary's Hosp for the East End, Stratford, E 15— M O and cas O, each at rate of £150 H P each at rate of £110. Also obstet H.S, at rate of

Queen's Hosp for Children, Hackney Road, E 2.—Dental £1 7s 3d per session

Redhill County Hosp, Surrey—Res asst M O., at rate of

Rotherham Hosp—H P., £180.

Royal Air Force—Commissions

Royal Army Medical Corps, Whitehall, S W.1—Supple reserve of officers

Royal Cancer Hosp, Fulham Road, S W 3—Asst. Asst radiologist for therapeutic dept, £350. Also and med reg, each £150

Royal Eye Hosp, St George's Circus, S E 1.—Sen H.S two asst H S 's, at rate of £150 and £100 respectively

Royal Free Hosp, Gray's Inn Road, W C 1.—Res. at rate of £150 *oyal London Ophthalmic Hosp , City Road, E C* 1 —Sen. res officer, at rate of £150

oyal Masonic Hosp , Ravenscourt Park, W 6 —Two res surg O s, each at rate of £250

oyal Naval Medical Service.—M O s

oyal Northern Hosp , Holloway, N 7 —Pathological registrar, £200

oyal Waterloo Hosp for Children and Women Waterloo Road, S E 1.—Anæsthetist, £100

t John's Hosp for Diseases of the Skin, 5, *Lisle Street Leicester Square, W C* 2 —Outpatient and inpatient med registrars, each £50

t Mary's Hosp for Women and Children, Plaistow —Hon ophth surgeon Also hon dermatologist for skin dept.

t Marylebone Borough —M O H £1350

alford Royal Hosp —H S , and cas H S , each at rate of £125

heffield, Children's Hosp —H P at rate of £100

toke-on-Trent Stallington Hall Certified Institution, Blythe Bridge —Med supt , £800

toke-on-Trent City —Sen asst. maternity and child welfare officer, £600

wansea General and Eye Hosp —H P at rate of £150

ilbury Hosp , Essex.—Med supt £200 Also H S , at rate of £140

niversity College Hosp , Gower Street, W C 1 —Two hon anæsthetists

ictoria Hosp for Children, Tite Street Chelsea, S W 3 —Surgeon to outpatients Also hon surg reg

akefield, Clayton Hosp and Wakefield General Dispensary —Res surg O , £250

ales University —Mrs John Nixon Research Scholarship, £150 Lord Merthyr Research Scholarship, £200 Also Ewer Maclean Research Scholarship £150

alsall County Borough —Asst M O H £500

alsall General Hosp —Res surg O £300

arwick, King Edward VII Memorial Sanatorium, Hertford Hill.—First asst M O , £350

est Riding County Council —Supervisor of meals, £300

oolwich and District War Memorial Hosp , Shooters Hill, S.E 18.—Hon. asst surgeon and hon asst obstet surgeon Also H.S , at rate of £100

orcester County and City Mental Hosp Powick.—Asst. M O £350

he Chief Inspector of Factories announces vacancies for Examining Factory Surgeons at Uxbridge (Middlesex) Hathersage (Derby), Winsford (Cheshire) and Coupar Angus (Perth)

Medical Diary

Feb 20 to Feb 25

SOCIETIES

OYAL SOCIETY OF MEDICINE, 1, Wimpole Street, W 1

TUESDAY —5 P M , meeting of fellows

Pathology 8 15 P M , laboratory meeting at group laboratory and central histological laboratory Archway Hospital, Archway Road, N 19

WEDNESDAY

Comparative Medicine 7 45 P M (National Institute for Medical Research Hampstead N W 3), C H Stuart Harris Neurotropic Strain of Human Influenza Virus J R. Perdau Comparison of Experimental Lesions in Louping-ill and Australian X Disease F B Gordon Toxoplasma like Parasite in the White Rat A S Parkes Experimental Hyperfœtation in the Rabbit. R E Glover Cultivation of the *Virus of Aujeszky's Disease*

THURSDAY

Urology 8 30 P M Mr D S Poole Wilson The Treatment of the Incompletely Descended Testis Dr Ian Donald New Automatic Bladder Irrigator

FRIDAY

Disease in Children 4 P M , meeting at the Hospital for Sick Children Great Ormond Street W C.1

Epidemiology and State Medicine 8 15 P M Dr Alfred Cox Dr Andrew Topping, Dr Lindsey Batten Dr Frank Gray, and Dr E R C. Walker The *Proper Sphere of* State Medicine

Odontology Combined meeting of Odontological Societies at Birmingham

OYAL MEDICO PSYCHOLOGICAL ASSOCIATION

WEDNESDAY —2 30 P M (11 Chandos Street W 1), Dr D R MacCalman Present Status and Functions of the Child Guidance Movement in Great Britain and its Possible Future Developments 8 30 P M (joint meeting with medical section of the British Psychological Society at B M.A House Tavistock Square W C.1) Dr A A W Petrie Dr J Ivison Russell Dr R D Gillespie, and Dr Noel Harris Mental Nursing

Pathological, Bacteriological and Biochemical Subcommittee

TUESDAY —3 P M (Central Pathological Laboratory, Denmark Hill S E 5) Dr A I Evans and Dr W M Ford Robertson The *Pathological* Significance of Recovery from Long standing Psychoses

EDICAL SOCIETY OF LONDON 11, Chandos Street W 1

MONDAY.—9 P M , Prof G Grey Turner: Surgery of the Gall bladder and Bile-ducts (Lettsomian lecture)

HELSEA CLINICAL SOCIETY

TUESDAY —8 30 P M (Rembrandt Hotel, Thurloe Place S.W 7) Captain Alex. S. Mackay Lighthouses

EUSTON MEDICAL SOCIETY

THURSDAY —9 P M (Euston Hotel) N W 1 Mr A G Wells Medical Treatment of Deafness , Mr H A Cowan will show a film of the mastoid operation

ST JOHN'S HOSPITAL DERMATOLOGICAL SOCIETY, 5, Lisle Street W C.2

WEDNESDAY —4 30 P M clinical cases 5 P M., Dr F F Hellier Environment and Constitution in Dermatology

MEDICO LEGAL SOCIETY

THURSDAY —8 30 P.M (26 Portland Place, W 1), Mr D Harcourt Kitchin The General Medical Council

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East S W 1

THURSDAY —5 P.M., Dr Donald Stewart Industrial Incapacity and Modern Medicine (Milroy lecture.)

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane Road W 12

TUESDAY —4.30 P M , Dr S Levy Simpson Diseases of Endocrine Glands

WEDNESDAY —Noon, clinical and pathological conference (medical) 2 P.M , Dr T C Stamp Passive Immunisation in Therapeutics 3 P M clinical and pathological conference (surgical) 4 30 P.M , Prof E C Dodds Hormones in Relation to Medicine and Pathology

THURSDAY —2 15 P M Dr Duncan White radiological demonstration 3 30 P.M , Dr A S Parkes, F R.S . The Anterior Pituitary Hormones

FRIDAY —2 P.M , clinical and pathological conference (obstetrics and gynæcology) 2 30 P.M Mr C Price Thomas Empyema and Abscess of the Lung

Daily, 10 A.M to 4 P.M , medical clinics surgical clinics and operations, obstetrical and gynæcological clinics and operations

TAVISTOCK CLINIC Malet Place, W C 1

MONDAY.—4.30 P.M , Dr H V Dicks Sexual Maladjustments

THURSDAY —4 30 P M , Dr T W Mitchell The Psychoneuroses

ST GEORGE'S HOSPITAL, S W 1

THURSDAY —5 P M , Dr E Guttmann psychiatric demonstration

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W C 1

THURSDAY —3 P M , Dr E A Cockayne The Diagnosis of the Leukæmias in Childhood 3 P.M , Mr Charles Donald Swellings and Sinuses in the Neck

Outpatient clinics daily at 10 A.M , and ward visits at 2 P M

MAIDA VALE HOSPITAL FOR NERVOUS DISEASES W 9

THURSDAY —3 P M , Dr Blake Pritchard clinical demonstration

HAMPSTEAD GENERAL AND NORTH WEST LONDON HOSPITAL, N W 3

WEDNESDAY —4 P M , Dr Rickword Lane Side room Tests in General Practice

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn Road W C 1

FRIDAY —4 P M , Mr Harold Kisch Frontal Sinusitis—Diagnosis and Treatment

NATIONAL HOSPITAL Queen Square W C 1

MONDAY —3.30 P M , Mr O Elmquist demonstration of remedial exercises

TUESDAY —3 30 P M Dr Purdon Martin Neurosyphilis (4)

WEDNESDAY.—3 30 P M , Dr F M R Walshe clinical demonstration

THURSDAY —3 30 P.M Dr Gordon Holmes, F R.S Cerebellar Tumours

FRIDAY —3 30 P M., Dr E A Carmichael Deficiency *Diseases (2)*

Outpatient clinic daily at 2 P M

LONDON SCHOOL OF DERMATOLOGY 5, Lisle Street W C 2

TUESDAY —5 P M. Dr Hugh Gordon Treatment of Acne

THURSDAY —5 P M , Dr Arthur Burrows Malignant Conditions of the Skin (Chesterfield lectures)

ST JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE Ranelagh Road, S W 1

FRIDAY —3 30 P M , medical registrars: Electrotherapy and Hydrotherapy in the Rheumatic Diseases

SOUTH WEST LONDON POST GRADUATE ASSOCIATION

WEDNESDAY —4 P.M. (St James Hospital Ouseley Road S W 12) Dr Temple Grey The Difficulties of Death *Certification*

FELLOWSHIP OF MEDICINE AND POSTGRADUATE MEDICAL ASSOCIATION, 1 Wimpole Street W 1

MONDAY to SATURDAY —INFANTS HOSPITAL, Vincent Square S W 1 all-day course in children's diseases —ST MARY'S HOSPITAL Paddington W 2, Tues and Thurs 8 P.M., clinical and pathological M R C P course —BROMPTON HOSPITAL S W 3, 5.15 P M twice weekly M R C P course in chest diseases Mon Wed Fri 5 15 P.M primary F R C S physiology course at 11, Chandos Street, W 1 —ST JOHN'S HOSPITAL, 5, Lisle Street, W C 2 afternoon course in dermatology (Open to non members)

LEEDS GENERAL INFIRMARY

TUESDAY —3.30 P.M , Dr S J. Hartfall *Some Aspects of* the Treatment of Fibrositis and Arthritis

MANCHESTER ROYAL INFIRMARY

FRIDAY —4 15 P M, Mr A Graham Bryce surgical cases

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION

WEDNESDAY —4 15 P M (Royal Maternity and Women's Hospital), Dr R A Lennie: Ante-natal Care

NOTES, COMMENTS, AND ABSTRACTS

THE PREVALENCE OF CONTRACEPTION

RAYMOND PEARL'S STUDY

STUDENTS of population are generally agreed that the decline of the birth-rate in the Western World should be attributed mainly, if not entirely, to the practice of contraception But it is only within recent years that attempts have been made to ascertain the prevalence of contraception in a given community as a whole or in separate sections, or to relate varying prevalence to differences of economic status, race, or religion Statistics on such subjects have been published, but for the most part they are based on the records of *birth-control clinics*, and the women attending these clinics form a selected group, heavily overweighted with multiparæ and of relatively high fertility. Such objections do not, however, apply to a remarkable investigation recently undertaken by Prof. Raymond Pearl, and explained in his Heath Clark lectures delivered in the London School of Hygiene and Tropical Medicine in the autumn of 1937, now published in book form [1]

The investigation, which in extent and significance is far in advance of anything previously attempted in this field of inquiry, was carried out in 26 large American cities east of the Mississippi and north of the most southern tier of states The cost of the investigation was largely defrayed by the Milbank Memorial fund Particulars were obtained of 30,949 women, 25,316 white and 5633 negro, living in these cities each of whom gave birth to a baby in the obstetric department of a hospital during 1931–32, the number of hospitals participating being 139 The particulars included (*a*) the entire reproductive history, (*b*) the use of contraceptives, (*c*) statements concerning health, religion, and racial, educational, and economic status. The information was obtained and recorded by the medical officers of the hospitals, all of whom were specially trained in obstetrics. They worked under the general direction of Prof Pearl, in whose opinion the data may "be accepted with a considerable degree of confidence as indicative of conditions in the general population, and particularly of the urban population, of the United States"

Two classes of women of childbearing age were, however, not represented in the sample: (1) those physiologically incapable of bearing children, and (2) those voluntarily infertile for the period covered by the investigation Of the white women, 54 per cent said that they had never practised contraception, and the investigators found no reason to doubt their statements; 3 2 per cent said the same, but there were reasons for doubting their veracity; 42 7 per cent. said that they had practised contraception. The corresponding percentages in the negro group were 83 0, 16 4, and 0 6 Pearl gives reasons for thinking that the percentage of white women definitely recorded as practising contraception is below the corresponding percentage for the population from which the sample was drawn, which he estimates at from 55 to 60.

One object of the inquiry was to ascertain the relation between the prevalence and efficiency of contraceptive practice and the fertility of classes differing in economic status, education and religion This part of the inquiry was restricted to married women living in wedlock, married once only, and free from any gynæcological disease recognisable by the hospitals in which they were delivered The number of such women was 22,657, of whom 19,613 were white and 3044 negro. They were divided according to economic status into four groups: Very Poor, Poor, Moderate Circumstances, Well-to-do and Rich; and the percentage of white women practising contraception to all white women in their respective groups rose from 30 0 among the Very Poor to 80 1 among the Well-to-do and Rich. There was a similar rise in the efficiency of contraceptive practice measured by postponement of pregnancy, the differences being much greater among multiparæ than primiparæ. The general trend in the negro classes was similar, but there was no negro Well-to-do and Rich class Reviewing the relation between economic status and fertility, Pearl concludes that:—

> "The results of the study make it quantitatively clear that the major factors immediately associated statistically with the observed economic class differential fertility in this American population sample were (*a*) increasing age at marriage with advancing economic position; (*b*) increasing prevalence of contraceptive efforts with advancing economic status, and (*c*) increasing effectiveness of the contraceptive efforts actually made with advancing economic status. The evidence indicates that in the absence of these factors there would be but little if any fertility differential between the several economic classes."

This conclusion is in general agreement with results reached by other workers The facts elicited about abortion are more surprising. The number of induced abortions (exclusive of abortions induced for medical reasons) per hundred pregnancies experienced in each of the economic groups of white women is set out below:—

—	Totals	Very poor	Poor	Moderate circumstances	Well-to-do and rich
Non-contraceptors	0 7	0 8	0 7	0 4	1 1
Contraceptors .	2 3	2 4	2 6	2 0	1 0

In Pearl's opinion these results, which are based on the women's own statements, understate the true prevalence of induced abortion. He lays stress on the fact that the data were all derived from married couples living in wedlock; and he is concerned to find that "in this large sample of respectable white married women already shown to be fairly representative of the general population from which it came, those who practice contraception as a part of their sex life, by their own admission resort to criminally induced abortion about three times as often proportionately as do their comparable non-contraceptor contemporaries." The explanation he gives is that "criminal abortion is the last desperate remedy to correct the failure of contraceptive technique", and he adds that it may reasonably be deduced from his results "that for something like three-quarters of that part of the professional abortionist's business that derives from urban American married women he can thank the birth controllers and the current imperfections in the technique of their art"

Abortion, however, was less frequent among the Well-to-do and Rich class, in which contraception was most prevalent and most efficiently practised, than among the contraceptors of lower economic status, and it is reasonable to infer that if the latter should reach the standard of efficiency set by the most opulent class criminal abortion would become less frequent among contraceptors generally In view of the improvements in contraceptive appliances and technique which are now being made under the combined efforts of scientific research and commercial enterprise such a result is not unlikely, and its effect on population growth in the United States, where the net reproduction-rate has already fallen below replacement rate, would probably be considerable This, however, is only one of many important questions raised by Pearl's remarkable and significant investigation

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[1] The Natural History of Population By Raymond Pearl (Johns Hopkins University) Oxford University Press 1939 Pp 416 10s 6d

IRON, CALCIUM AND PHOSPHORUS

A JOINT meeting of the Society of Public Analysts and the food group of the Society of Chemical Industry was held on Feb 1 in the Chemical Society's rooms at Burlington House The subject dealt with was the analysis and differentiation of the composition of iron, phosphorus and calcium compounds in respect of nutritional requirements Prof J C Drummond, in introducing the subject, referred to the development of methods of assessing nutritional value since the pioneer work of Liebig Today the mere determination of the total intake of iron, phosphorus and calcium was insufficient For example, the nutritional value of iron in red meat was very different from that of the iron in wheat, and methods of estimating "availability" of the iron had assumed great importance The problems arising in connexion with phosphorus and calcium were in many respects closely interrelated and had an important bearing on the function of vitamin D At the present time the average intake of calcium and the Ca/P ratios of diets were apparently lower than they used to be and considerably below the optimum values, and this might account for the necessity of supplementing the normal intake of vitamin D by the use of rich sources of this vitamin which formerly were neither necessary nor available

Speaking on the relation of iron to nutrition, Dr R. A. McCance pointed out that this metal in the ionisable form—e g , as mineral salts—was utilisable by the animal body to a much greater extent than the iron in organic combination in hæmoglobin or hæmatin Since 1930 a means of discriminating between these two forms of combination of iron by means of αα'-dipyridyl, which determined the former but not the latter state of combination, had come into use Valuable as this method was, a critical examination of the results obtained with it, compared with those of biological assays, showed wide and variable discrepancies Probably the use of tripyridyl was preferable to that of αα'-dipyridyl, and there was room for great improvement in the methods of biological assay used in this work It would seem that the iron not determined by αα'-dipyridyl could not be entirely accounted for as hæmoglobin or hæmatin, and the nature of the fraction not accounted for had not yet been ascertained

Dealing with phosphorus, Prof H D Kay pointed out that in certain respects the nutritive values of phosphorus and calcium were interdependent In man, about 90 per cent of the total phosphorus present was in the bones, about 8 per cent in the muscles, and much smaller quantities in the brain and blood The presence of precipitants for phosphates in the food ingested might seriously interfere with absorption of phosphorus This was strikingly shown by recent experiments on the effect of ingestion of beryllium carbonate, which owing to the almost complete insolubility of beryllium phosphate was able to prevent absorption of phosphates present in the food and so give rise to rickets even with diets rich in vitamin D A similar precipitating action on phosphates would account for the fact that a large excess of calcium in a diet interferes with phosphorus absorption

Dr J D Robertson, speaking in place of Prof E C Dodds, who was unable to be present, described the procedure employed by them in studying the calcium-balance in human beings over three-day periods, and gave details of the analytical methods employed The calcium voided in such studies comprised that part of the calcium ingested which had not been absorbed, and also the calcium from the system which had been excreted Calcium absorption depended on such factors as the composition of the diet, hydrochloric acidity and the presence of certain substances, notably lactose

"THE STRONGHOLD"

John Quickshott, the hero of Richard Church's new novel of the war years (London J M Dent *8s 6d*), is an over serious young man who works in the Customs Office and feels the call to be a doctor He devotes his abundant leisure to securing a degree in physiology and so becomes a medical student. Meanwhile, for no very concrete reason, he parts from his lover, Dorothy Sinmer, a young woman much too good for him who goes to France to do war work, and unknown to John affords him financial help After many vicissitudes the lovers are reconciled, but sympathy goes out to Dorothy for it is hard to believe that John will become either a good doctor or a good husband The subsidiary characters are not altogether convincing Phyllis Drayton, sensual, stupid and patrician, ignorant of the facts of life, seduced by a Guards officer, and dying of postpartum hæmorrhage , Matthew Brennan, purporting to be the perfect "metropolitan" but in fact merely a theatrical figure Dorothy's cow like sister Mary and her rather ineffective little husband are more real We may wonder why a third year student suddenly puts in six months as a clinical clerk at the Cancer Hospital, or why without so much as the experience of a month on "district" he finds it necessary to apply forceps to a multipara having a slightly premature but otherwise normal labour The medical reader must be ready to overlook some bad obstetrics and skim over a particularly purple description of an amputation of the breast if he means to enjoy this novel

A NATIONAL LANGUAGE FOR INDIA

THAT Hindustani will be the national language of India, ousting English from its position as the normal means of both the education and the expression of science, is claimed by Capt E S Gopalan, who advises scientists, especially medical men, in India to learn Hindustani and to publish their papers in that language instead of English (*South Ind Med* November, 1938, p 151) His argument is special pleading based on dubious assumptions For instance he says that "Hindustani is really the lingua franca of India", but surely, writing from Coimbatore, he will be aware that Tamil (a non-Aryan language) is spoken by over 18 000,000 people in India by many others in Ceylon, and by Tamilians in Assam, Burma, Malaya and elsewhere It is the language of the Carnatic coast from Madras to Cape Comorin Besides Tamil there are three other chief Dravidian languages (1) Telegu (Andhra) spoken by 21 000 000 people the language of the Carnatic and northern Circars from Madras to Ganjam , (2) Canarese, spoken by 10,500,000 people in the Deccan the official language of the state of Mysore , and (3) Malayalam spoken by 7,000,000 people in Travancore Cochin, and Malabar—not to mention eleven other Dravidian languages Where any of these is spoken as the vernacular, English rather than Hindustani is ordinarily used as the link between European and Indian.

Gopalan also claims that "culturally it (India) has been, is, and is going to be one in spite of the apparent diversities in religion and provincial languages" He seems to be one of those who believe in the Aryan myth despite the fact that, according to Slater in his "Dravidian Element in Indian Culture" (1924) the Dravidian element preponderates over all other elements in the racial make-up of the people of India. Slater (sponsored by no less an authority than Prof. H. J. Fleure) says that the "Indians cling to the theory that they are 'Aryans' and that their religion and culture are 'Aryan.' . . . In India the Aryan theory rests upon a solid basis of sentiment. Indian *amour propre* is gratified by the idea that Indians are Aryans, so to say, of the elder line; British, French, and Germans Aryans of the younger and till lately relatively uncivilised branch."

We should regard it as a retrograde step for English medical publications to be replaced by Hindustani. Science is international and the smaller its confusion of tongues the better for those engaged in scientific work. Moreover it would probably be easier to replace Hindustani by English in northern India than to teach Hindustani to southern India. "The extent to which English has already become the language of South India is amazing," wrote Slater fifteen years ago. Scientific progress is obviously best linked with a language such as English, which, as Gopalan admits, is the best foreign language for the purpose, "as it is handled by the largest number of people in three continents."

PAIN IN CANCER OF THE CERVIX

MODERN methods of treatment have lengthened the period of survival for many sufferers from cancer of the cervix and for that very reason there may be more cases in which pain is a symptom of outstanding importance. J. Ducuing analyses the types of pain encountered and the methods of treatment available (*Tech. chir.* 1938, 30, 125). He argues persuasively that where death is likely to be delayed for some time and the general health is not much affected the patient should be given the chance of relief offered by one or other of the newer methods, which provide an alternative to opiates. The procedures used with varying degrees of success include injection of alcohol (intraneural, epidural, subarachnoid), sympathectomy, nerve-root section, and chordotomy. The choice between them depends partly on the type and origin of the pain and partly on the general condition. No one method is successful in all cases, and some of them are too risky to attempt where a patient is already very ill Minor procedures such as intrathecal alcohol injection can, however, be safely performed even in the last stages of cancer and they sometimes give great relief.

ANNUAL REPORT OF A G.P.

IN the belief that the flow of knowledge from hospital to general practitioner may be reversed with profit to all concerned Dr. Trier Hansen, a Danish general practitioner, has published a report on his year's work (*Ugeskr. Laeg.* Jan. 12, p. 47). The cases he saw in his moderately large country practice are classified in alphabetical order in Latin terms, only new cases being included. The first year of life formed one category, and the next thirteen years another. There was one category for women and another for men; one for the cases referred to specialists or ambulatory treatment; one for hospital admissions; one for operations; and one for deaths. Under A, for example, is to be found angina (tonsil) with 3 cases in infancy, 48 in childhood, 49 in women and 38 in men; 2 being admitted to hospital, with 1 death. Next comes ascariasis, represented by 23 cases in childhood and 3 in adult life. The heading nihil is reserved for 3 infants, 4 children, 4 women and 2 men. The alphabetical list ends with various forms of "vulnus." Dr. Hansen gives an imposing list of dental extractions classified according to the number of teeth extracted. He comments sorrowfully on the disinclination of hospital doctors to attend to their patients' teeth. Prophylactic dentistry is still considered a costly luxury in his district, and the resultant sins of omission are often visited on the general practitioner. A study such as this is valuable by itself, but its value would be much enhanced if it could be compared with similar studies in other areas and at other times.

SULPHANILAMIDE ERUPTION

WRITING in the *American Journal of Diseas Children* (1938, 56, 1256), E. R. Schlesinger a W. L. M. Mitchell, jun., propose the follow "natural history" of sulphanilamide erupti There is, they say, a prodromal fever, sometim preceded by transient leucopenia and followed b morbilliform rash, often with splenomegaly. T eruption develops within 5–17 days of commen ment of the treatment and lasts 36–96 hours. Sub quently secondary leucopenia has been observ Later administration of sulphanilamide has produ a scarlatiniform rash with fever and leucocyt within a few hours, while continued administrati has been associated with increased capillary fragil and occasionally arthritis. Passage of time a increase of the dose for a short period, or repe large doses at intervals, have decreased or abolish these reactions.

Schlesinger and Mitchell themselves report 10 *in children of ages ranging from four to eleven yea*

AN INFORMATION SERVICE IN HUMAN GENETICS

LAST year the Bureau of Human Heredity issu *to members of their information service a bulletin* help those engaged in *current research in hum* heredity to get in touch with other workers in t same subject. A second bulletin is now in prosp and information is already to hand from ma research institutions as well as from individu workers abroad. The bureau is *desirous to obt* the cooperation of those interested in particu studies of human *genetics in this country.* Sc workers are invited to send to the bureau an intim tion of the subjects on which they are engaged, n to exceed 100 words, accompanied by a subscripti *of 5s.* and including *their address and the* name o the institute (if any) to which they are attach The material so collected will be issued in th languages *to subscribers only. The office of* th bureau is at 115, Gower Street, London, W.C.1.

Births, Marriages and Deaths

BIRTHS

ANDERSON—On Feb 8, at Glasgow, the wife of Dr Thom *Anderson—a son*

FINLAISON—On Feb 9, at Burnsall Street, Chelsea, the wi of Mr F H Finlaison, F R C S—a daughter

FULLERTON—On Feb 11, the wife of Captain A H T. Fulle R A.M.C—a son

HUGHES—On Feb 11, at Sutherland Avenue, Maida Va *the wife of Dr. William Hughes, Colonial Medical Serv Nigeria*—a daughter.

KERSLEY.—On Feb 12, the wife of Dr G D. Kersley of Bat a son

THOMAS—*On Feb 11, at King's College Hospital,* Lo the wife of Dr René Thomas, of York—a son

WHYTE—On Feb 8, at Aberdeen, the wife of Captain A 0 Whyte, R.A M C—a son

WINTERTON—On Feb 8, at the London Clinic, the wi Mr Ralph Winterton, F R C S—a daughter

DEATHS

CROWDY—On Feb 12, at Pinhoe, Exeter, Francis Demai Crowdy, M A, M D Oxfd, aged 81

CULMER—On Feb 7, John James Culmer, M R C S, of Na Bahamas, aged 72

DOUGLAS—*On Feb. 14, at Droitwich,* Major-General Edward Manning Douglas, C B, V C, L R C A M S (retd)

HOME ROSS—On Feb 10, in London, John Ross Home M B Edin, F R C P E, of Lower Kingswood, Surrey

KIRBY—On Feb 9, 1939, at Bath, Thomas Kirby, aged 71 A governor and formerly registrar of the Royal Na Hospital, Bath

McCARDIE.—On Feb 14, at Warwick, William Joseph McC M B Camb, M.R C S, aged 74.

OKELL.—On Feb 8, at Chesterton, Cambridge, Charles C Okell, M C, M B, Sc D Camb, F R C P, aged 59

N B—A fee of 7s 6d is charged for the insertion of Not Births, Marriages and Deaths

ADDRESSES AND ORIGINAL ARTICLES

TREATMENT OF PNEUMONIA WITH 2-(p-AMINOBENZENESULPHONAMIDO) PYRIDINE (M & B 693)

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An experiment to evaluate the drug 2 (p amino-benzenesulphonamido) pyridine (M & B 693) in the treatment of pneumonia was carried out in Johannesburg during the winter and spring of 1938, among the various population groups in natives and in Europeans Pneumonia is particularly prevalent in Johannesburg from May to July (winter) and August to October (spring) Through the courtesy of May and Baker Ltd a supply of the drug was obtained for distribution to the participants in the experiment, which comprised the following —

Johannesburg Hospital
- (A) Non-European section native and coloured male and female adults
- (B) European section male and female adults

(C) City Deep Ltd Central Native Mine Hospital —Adult male natives engaged in mining work

(D) Randfontein Estates Ltd Hospital.—Adult male natives engaged in mining work The natives in this mine are all fully prophylactically inoculated with vaccine against pneumonia

(E) Witwatersrand Native Labour Association Ltd Hospital —A collecting and distributing depot of natives engaged for work on the Witwatersrand gold mines

The cases of pneumonia in each of the above groups have been separately studied In each group, except (E), there were control and treated series of cases No selection whatever was made of patients preliminary to their being allocated to control or treated series in each group Each of the hospitals in the experiment serves a different "variety" of the population, and thus each may be looked upon as a distinct experiment

The essential differences, from the point of view of pneumonia, between Europeans and natives in Johannesburg are (1) for various reasons there is a higher incidence in natives than in Europeans, and (2) the bacteriology of pneumonia in natives differs somewhat (Ordman 1938) The reasons why mining and non mining natives cannot be directly compared in this experiment are (a) the former include only selected adult males of a particular age-group (20–40 years), (b) the miners are medically examined and declared physically fit before they are incorporated into the mining population, and (c) a proportion of the miners have either recently or previously received vaccine in pneumonia prophylaxis Another important difference between the Johannesburg Hospital patients (both natives and Europeans) and the patients from the mining populations is that the latter have from the time of their engagement been under constant medical supervision and are admitted as patients to the hospital very soon after the development of the disease, whereas the former do not receive hospital treatment on an average before four days have elapsed after the commencement of their illness

The total number of patients in the experiment was 550, and it is thus impossible to give individual case reports in this paper For each population group, however, a summary has been worked out for the control and treated series, and these summaries are presented in table I and should be referred to for each experiment at the various hospitals The figures in the table are given in percentages to facilitate comparison

The cases included in the experiment were only those in which definite clinical signs of lobar consolidation could be detected In some cases, therefore, the diagnosis was not made until several days after admission, although the disease may have been suspected on account of pyrexia, rapid respiratory rate, the character of the sputum, herpes, and other signs associated with lobar pneumonia As will be seen later under the separate headings and in table I, X-ray confirmation was not always obtained, but all cases here recorded were, from a clinical point of view, undoubted cases of pneumonia

In the Johannesburg Hospital with its European and non-European sections the control and treated cases were not under the same physicians, the control cases being allocated to one set of wards and the cases for treatment by M & B 693 to another set of wards On the mines (C) (D) however, control and treated cases were under the same clinical supervision at each mine

On admission to hospital all cases were provisionally designated as mild (+), moderate (++), or severe (+++) "Mild" cases were those in which the patients, apart from an increase of respiratory rate, did not show much distress, the pulse being relatively good "Moderate" cases showed greater respiratory distress, with a rapid pulse rate "Severe" cases were those in which toxic symptoms were accompanied by restlessness or delirium, a weak and rapid pulse, and marked dyspnœa

Comments on the treatment of pneumonia in the control and treated cases are given hereunder in the separate groups Each hospital decided on its own methods and dosage without reference to or collaboration with any other hospital.

In each section below will be found comments on the deaths in the treated series, notes on toxic symptoms associated with the use of the drug details relating to blood examinations, and the conclusions come to with regard to the value of the drug

Pneumonia in the native miners on the Witwatersrand has been reported on previously (Lister and Ordman 1935) and little comment need be made at this stage The case mortality rate is fairly constant from year to year, although there is a seasonal variation The case mortality rate has been reduced in the series of cases treated with the drug as compared with the controls in the Johannesburg Hospital figures On the City Deep and on the Randfontein Estates (C) (D) the case mortality rates are almost as low in the control as in the treated cases, therefore the criterion as to the value of the drug must be based on other factors But, although judgment of the value of M & B 693 cannot be based on the case mortality rate on these mines the differences in favour of the drug from the point of view of duration of pyrexial period and clinical improvement are sufficient to warrant conclusions being drawn.

Johannesburg Hospital

DR AGRANAT

The investigation into the treatment of pneumonia by means of M. & B. 693 was carried out at the Johannesburg Hospital from the early part of July to about the middle of October, 1938. There are four medical units at this hospital, of which two treated cases with the drug and two acted as controls. Patients were admitted to all services without selection and throughout the period under review.

The physicians responsible for the treatment with M. & B. 693 were the senior physicians, Drs. R. L. Girdwood and L. I. Braun, and the assistant physicians, Drs. J. J. de Waal, A. L. Agranat, and J. B. Baynash. The control cases were under the care of the senior physicians, Prof. W. H. Craib and Dr. A. Bloom, and the assistant physicians, Drs. H. L. Heimann and J. J. Balkin. Access to patients and records made it possible to coordinate the work, and we have pleasure in recording our appreciation for this courtesy. With the kind cooperation of Sir Spencer Lister the laboratory investigations were carried out at the South African Institute for Medical Research.

The diagnosis of pneumonia was based upon a number of the following features: history, bloodstained sputum, physical signs of consolidation, radiography, and in some cases post-mortem evidence. An acute febrile illness with bloodstained sputum without signs of lung consolidation is not an uncommon finding in a native Unless there was corroborative X-ray evidence or physical signs of pneumonia which developed during the course of illness, such cases were excluded from the series Patients dying within twenty-four hours of admission were excluded in both the control and treated series.

(A)—NON-EUROPEANS

During the period of investigation 71 cases were treated with the drug and 86 controls were otherwise treated (table I). This small disparity is due to the slightly higher incidence of pneumonia admissions on the intake days of the control wards. The age-groups, tribal distribution, days of illness before admission (3 8 in each series), and lung pathology did not show any wide variations in the treated and control series. The severity of cases on admission was observed and recorded. There were about twice the number of "severe" cases admitted in the treated series as in the control series. About half the number of treated cases were confirmed by radiography (bedside unit) as compared with about 8 per cent. of the control series.

Administration and effects of the drug—A few cases earlier in the experiment were treated with 2 half-gramme tablets four-hourly for forty-eight hours, then 2 tablets thrice daily. The rest received the dosage recommended by Evans and Gaisford (1938)—namely, 4 tablets on admission and 2 tablets every four hours for seventy-two hours, followed by 2 tablets thrice daily until the temperature has been normal for three days. The first seventy-two hours' treatment is referred to below as the "intensive" course of treatment Table I shows that the average number of tablets of M. & B. 693 per case was 58 6 (=29 3 g.)

The temperature became normal within three days in about half the treated cases (fig. 1), as compared with about a quarter of the controls. In a number of cases the temperature fell by crisis or rapid lysis to remain permanently normal, but a secondary pyrexia was fairly common and was considered quite usual.

During the investigation it became apparent that the drug had no effect on serous effusions, empyema, or unresolved pneumonia. The following cases illustrate this point:—

CASE 7015.—Native male, admitted first day of illness with a left-lower-lobe pneumonia. Intensive M. & B 693 treatment was begun on the third day. Temperature became normal on the fifth day. On the seventh day a secondary rise occurred which persisted for fifteen days and was ascribed to a serous effusion. The administration of the tablets was continued until the twelfth day after admission (total 70 tablets) with no effect on this secondary pyrexia. After aspiration of straw-coloured fluid sterile on culture, the temperature returned to normal (fig. 2).

CASE 8332.—A poorly nourished coloured male admitted on fourth day of illness, with a right-lower-lobe pneumonia, type I. Intensive M & B. 693 treatment was begun on admission. Temperature reached normal on the third day; then a secondary rise due to an empyema occurred, persisting for twenty days until drained by rib-resection. The drug continued to the day of operation and amounting to 130 tablets, had no effect on the course of the empyema. Cultivation of the pus yielded a pure growth of pneumococcus.

The average duration of pyrexia in hospital was apparently but little affected by the drug, the figures being 4 8 and 5·6 days for the treated and control series respectively (table I) It may be that the admission of relatively advanced cases of pneumonia explains this point. No essential difference was observed in the mode of termination of the pyrexia (crisis or lysis) in the control and treated series.

The treated and control series showed a stay in hospital of about fourteen days This may be explained by the fact that the treated cases were in some instances detained for observation during the convalescent period. The hospital records also indicate that a number of cases in the control series refused further hospital treatment and were discharged before convalescence was fully established. Here again the late admission of cases may account for the absence of effect of the drug on the period of total stay in hospital

In most of the treated cases the leucocytosis accompanying the infection appeared to be practically undisturbed by the drug. A rapid and considerable fall in the count, or a count below 5000, was considered significant. Four of the non-European patients showed a fall in the white-cell count which called for modification of the usual dosage. The following two cases are given as examples:—

CASE 5317.—After 40 tablets had been given the white-cell count was 8700—a drop in three days from 15,200 on admission. Drug was discontinued. Temperature settled.

CASE 7391.—Count not done on admission. Three days later count was 5200, and 26 tablets had been given. Drug discontinued for four days, temperature rose again, and count four days after drug was stopped was 19,000. The drug was again administered, 72 tablets being given during the following twelve days, by which time the cell count had again dropped to 10,200, and the drug was again discontinued. Temperature settled in a few days.

Vomiting and diarrhœa occurred in about 15 per cent. of the treated cases. In a number of cases treatment was not discontinued or the dosage lessened on this account, and the patient was able to retain the tablets. In a few cases the treatment had to be interrupted temporarily to overcome this difficulty.

rushing the tablet and giving it in milk or beef-tea as helpful in some cases Abdominal pain was ometimes complained of, and relief coincided with ithdrawal of the drug No rashes occurred in the on-European cases Neither methæmoglobin nor lphæmoglobin was detected in a number of the ses investigated A confused mental state was at mes encountered, and it was difficult to decide if is was due to the toxæmia of the infection or toxic fect of the drug

Complications—In the treated series there were cases of empyema and 3 cases of serous effusion, s compared with no effusions or empyemas but 1 se of lung abscess in the control series

Case mortality—Eight patients who died within venty four hours of admission were discarded from e control and treated series During the period nder discussion there were in the non-European ection 13 deaths among 21 children of four years nd under, these were also excluded from this series, ecause no patients in the non European children's ard were treated with M & B 693

It is clear from the table that the treated cases enefited by the drug, for the case-mortality rate as 8 5 per cent as against a case mortality rate of 8 6 per cent in the control series not treated with [& B 693

Fatal cases—The following 6 cases treated with [& B 693 ended in death —

CASE 5724—Native male, aged 31, admitted on venth day of illness with a left-lower-lobe pneuonia, type I Treatment with M & B 693 was egun twenty-four hours after admission, and on e fourth day the chart showed temperature 99° F, ulse-rate 106, and respiration rate 34 Tablets ere discontinued because of vomiting but owing to secondary pyrexia were again given from the sixth o the thirteenth day after admission—2 tablets hrice daily Patient was very toxic, and the condiion became worse He died twenty-one days after nset of illness—i e, fourteen days in hospital The hite-cell count on admission was 43,000 and before eath 45,000

Post mortem there was a generalised empyema on e left side, with collapse of the left lower lobe, hich showed *no* signs of consolidation A terminal spiration bronchopneumonia was noted, with food the air passages

CASE 5850—Native male, aged 25, admitted with a left-lower-lobe pneumonia, type II Intensive M & B 693 treatment was begun on admission and continued till death White cell count on admission 24,500 and on day of death 25,600 Total dose 48 tablets No post-mortem (See fig 3)

CASE 6336—Native male, aged 43, admitted with right-upper-lobe pneumonia, type XII Intensive treatment was given for seventy-two hours, then 2 tablets thrice daily until death No post-mortem.

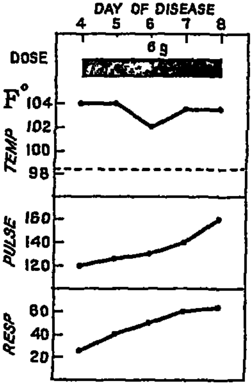


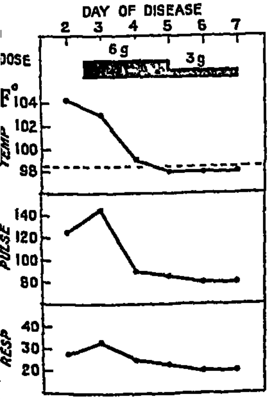
FIG 3—Chart of fatal case of pneumonia in a native (case 5850) treated with M & B 693

CASE 7020—Native male, aged 40, admitted eighth day of illness with a left lower-lobe pneumonia Intensive treatment was begun four days after admission—i e, eleventh day of illness A total of 48 tablets was given Patient died on ninth day in hospital—i e, sixteenth day of illness No post-mortem

CASE 7828—Indian *female*, aged 29, poorly nourished, very ill on admission with right-middle-lobe and left-lower-lobe pneumonia Pure growth of *Staphylococcus aureus* from sputum M & B 693 treatment was begun twenty four hours after admission, 24 tablets in all being given Patient very toxic and delirious The last few doses of tablets could not be swallowed satisfactorily Patient died sixty four hours after admission No post-mortem

CASE 8701—Native male, aged 60, admitted on fourteenth day of illness with a right-lower lobe pneumonia Sputum not bloodstained Temperature 103° F, pulse rate 120, and respiration rate 30

1



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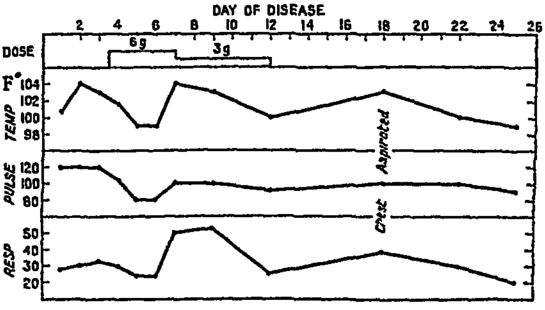


FIG 1—Typical chart showing effect of M & B 693 on temperature, pulse rate, and respiration rate

FIG 2—Chart of native (case 7015) with serous effusion treated with M & B 693

TABLE I—ANALYSIS OF PNEUMONIA CASES IN CONTROL AND TREATED SERIES OF VARIOUS POPULATION GROU

—	City Deep Ltd		Randfontein Estates Ltd		Johannesburg Hospital				Witwaters-rand
					Non-Europeans		Europeans		
	Control	Treated	Control	Treated	Control	Treated	Control	Treated	Treated
Cases—									
Males	100	100	57	58	77	62	23	22	24
Females	0	0	0	0	9	9	4	5	0
Total	100	100	57	58	86	71	27	27	24
Total deaths	4	0	1	1	16	6	6	2	1
Case-mortality rate (per cent)	4 0	Nil	1 7	1 7	18 6	8 5	22 2	7 4	4·2
Age-group in years (per cent)—									
–20	14 0	14 0	24 8	17 2	20 9	11 3	14 8	11 2	4·2
–30	46 0	39 0	57 9	60 3	48 9	62 0	29 6	22·2	70 8
–40	38 0	42 0	12 3	12 1	22 1	19 7	22 2	29 6	20 8
–50	2 0	5 0	5 3	8 7	5·8	4·2	18 5	14 8	4·2
Over 50	—	—	1 7	1 7	2 3	2 8	14 8	22 2	—
Tribal distribution (per cent)—									
Shangaan	31 0	38 0	24 6	17 2	9 3	5 6	..		12·5
Msutu	14 0	11 0	5 3	1·7	36 0	32 5			—
Xosa	7 0	8 0	—	—	9 3	9 8			4·2
Zulu	7 0	6 0	1 7	3 5	26 7	25 4			—
Buchuana	11 0	10 0	7 0	3 5	—	—			4·2
Nyambaan	10 0	12 0	24 6	37 9	—	—			—
Swazi	1 0	2 0	1 7	1 7	2 3	4 2			—
Mavenda	1 0	2 0	—	—	3 5	4 2			—
Pondo	4 0	2 0	—	1 7	—	—			—
Mixed	—	—	—	—	5 8	7 0			—
Nyasa	—	—	—	—	—	—			62 5
Blantyre	—	—	10 5	10 3	—	—			16·6
Mchopi	9 0	8 0	21 1	15 6	—	—			—
Other	5 0	1 0	3 5	6 9	7 1	11 3			—
Days of illness before admission (per cent)—									
0	Within 2 days (see text)		10 5	6 9	—	—	—	—	Within 2 days (see text)
1			50 9	55 2	8 1	9·8	3 7	7 4	
2			29 8	24 2	17 4	23·9	7 4	18 6	
3			7 0	8 6	29 1	18 4	37 0	14 8	
4			—	1 7	17 4	16 9	11 2	14 8	
5			—	—	8 1	8 5	14 8	18 5	
6			1 8	—	7 0	8 5	7 4	7 4	
7			—	1 7	2 3	4 2	—	3 7	
8			—	1 7	4 7	1 4	3 7	7 4	
Over 8			—	—	5 9	8·4	—	7 4	
Average days	..	.	1 4	1 7	3 8	3 8	3 8	4 5	.
Lobes affected (per cent)—									
Right upper	8 0	4 0	19 3	17 2	9 3	4 2	14 8	—	8 3
Middle	1 0	8 0	3 5	3 5	1 2	1 4	—	—	—
Lower	26 0	24 0	19 3	22 4	41 9	35 2	18 5	25 9	37 5
Two lobes	12 0	11 0	10 5	6 9	2 3	8 5	—	—	4 2
Whole lung	9 0	10 0	3 5	—	3 5	5 6	3 7	7 4	—
Left upper	5 0	2 0	—	1 7	5 8	1·4	3·7	7 4	12 5
Lower	28 0	26 0	35 1	44 8	30 2	28 2	29 6	40 7	33 3
Two lobes	11 0	10 0	3 5	—	2 3	2 8	3 7	11 2	—
Both lungs	—	5 0	5 3	3 5	1·2	8 5	7 5	3 7	4·2
Bronchopneumonia	—	—	—	—	2 3	4 2	18 5	3 7	—
Confirmed by X ray (per cent)	77 0	85 0	100	100	8·1	45 1	55 6	Nil	N

Radiogram suggested atelectasis—"loss of translucency in the right base . . . is too dense for pneumonia . . . some displacement of heart to this side." Intensive M. & B. 693 treatment on admission, total 46 tablets. Patient died on the sixth day after admission—i.e., nineteenth day of illness. No post-mortem.

It is unfortunate that in these 6 cases only 1 post-mortem examination was obtained. Case 5724 died from an empyema, the pneumonia having resolved. Cases 7020 and 8701 were admitted late in the illness; treatment was delayed in case 7020; and the diagnosis of uncomplicated pneumonia in case 8701 is doubtful. Cases 5859 and 6336 appeared to be straightforward pneumonia which failed to respond to the drug.

(B)—EUROPEANS

A number of features discussed under the non-European group apply equally to the European group. Here there were 27 cases treated with M. & B. 693 and 27 controls (table I). The age-groups, physical signs, and severity on admission more or less corresponded in the two series The treated European cases ca in on an average seventeen hours later than t control European cases, which fact may influe some aspects of the M. & B 693 results About h the number of treated cases were confirmed radiography as compared with none in the contr Of the treated cases 61 per cent had a normal te perature within three days, as compared with 10 p cent. of the controls Twice the number of ca terminated by crisis in the treated series compa with the controls The average stay in hospital of t treated cases was 20 1 days in comparison with days in the controls In the treated series there therefore a bigger percentage returning to nor within three days, a bigger number ending in cr and a somewhat shorter period of stay in hospital

Toxic manifestations of the drug: agranulocyto— The mode of administration and dosage of the d was similar to that employed in the non-Europe series. The toxic manifestations were similar, but macular rash developed in 3 cases. A trace sulphæmoglobin was found in 1 case (No. 74 A state of mental confusion was noted in seve

TABLE I—(*continued*)

—	City Deep Ltd		Randfontein Estates Ltd		Johannesburg Hospital				Witwatersrand
					Non Europeans		Europeans		
	Control	Treated	Control	Treated	Control	Treated	Control	Treated	Treated
verity on admission (per cent)—			Not detailed						
+	38 0	17·0			5 9	2 8	7 4	18 5	12 5
+ +	60 0	69·0			76 7	64 8	66 7	48 2	79 2
+ + +	2 0	14 0			17 4	32 4	25 9	33 3	8 3
ys in hospital before M & B 693 given (average)	—	0 9	—	0 2	—	0 3	—	0 4	2 2
ys in hospital with pyrexia after administration of M & B 693 (per cent)—									
0	—	—	—	—	—	—	—	—	—
1	—	4 0	—	3 5	1 4	12 3	—	26 1	43 6
2	—	45·0	5 4	40 3	8 6	21 5	—	34 8	21 7
3	7 4	21·0	1 8	43 8	17 1	18 5	10 0	8 7	17 4
4	8 3	13 0	5 4	5 3	11 4	7 7	25·0	—	13 0
5	11 5	3·0	8 9	—	14 3	10 8	20 0	—	4 3
6	20 8	4 0	16 1	—	15 7	7 7	—	4 1	—
7	10 4	2 0	21 4	—	10·0	7 7	5·0	—	—
8	12 5	3 0	8 9	—	7·2	3 1	5 0	—	—
Over 8	29 1	5 0	32 1	1 8	14 3	6·2	35 0	21 7	—
Apyrexial	—	—	—	5 3	—	1 5	—	4 3	—
verage days	—	3 6	—	2·6	—	4 5	—	6 6	2 1
tal of days in hospital with pyrexia (average)	7 5	4 5	7 8	2 8	5 6	4 8	7 4	6 0	4 3
rmination of pyrexia (per cent)—									
Crisis	57 3	57·0	46 4	91 2	51 4	56 9	35·0	68 0	65 2
Lysis	42 7	43·0	51 8	3 5	48 6	41 6	65·0	28 0	34 8
Apyrexia	—	—	1 8	5 3	—	1 5	—	4 0	—
ys of stay in hospital (per cent)—									
−10	2 1	33 3	1 8	3 6	27 2	30 8	9 5	13 [illegible]	—
−15	42 7	50 5	19 6	53 6	43 0	49 2	23 8	27 3	17 4
−20	33 3	10 1	21 4	10 6	22 9	3 1	19 0	27 3	17 4
−25	7 3	2 0	17 8	12 5	2 8	7 7	19 0	9 1	4 3
−30	7 3	3 0	11 3	7 1	2 8	3 1	14 1	4 5	[illegible]
−35	3 1	—	13 5	3 6	1 4	4 6	—	4 [illegible]	21 7
−40	1 0	1 1	8 9	—	—	1 5	4 8	9 1	—
Over 40	3 1	—	5 7	—	—	—	9 5	4 5	—
verage days	18 5	12 0	24 0	16 6	14 1	14 6	23 8	20 1	21 4
& B 693 per case (average)—									
Tablets	—	48 7	—	38 0	—	58 6	—	63 1	28 3
Grammes	—	21 3	—	19 0	—	29 3	—	31 6	14 [illegible]

European cases, and it was felt that this had some elation to the drug One case developed complete granulocytosis, the details being as follows —

CASE 5529 —This was the first European case reated at the General Hospital, and, although his reatment began a few *days before* the middle of uly, he was included in this series owing to this omplication He was admitted with a right lower-obe pneumonia, type III M & B 693 treatment was egun seven days after admission, 2 tablets being iven four-hourly for forty-eight hours, then 2 tablets hrice daily for four days—48 tablets in the first ourse The white-cell count on the day M & B 693 vas begun was 7000, and three days later it was 8000 The temperature settled, but a secondary pyrexia occurred two days later, when M & B 693 was again dministered for another six days, totalling 48 *tablets* A count of 16,000 white cells with 50 per cent of polymorphs was obtained on the last day of the second course of treatment The total number of tablets given was 96 The temperature settled, and seven days after he drug was stopped a blood-count was done, not ecause of the occurrence of any symptoms but as a check The following count was obtained leuco ytes, 3200, neutrophils, 1 per cent, monocytes, 4 per cent, lymphocytes, 94 per cent, and eosino-hils, 1 per cent

The patient remained symptomless but pentose nucleotide was given Seven days later the ount was leucocytes, 8800 neutrophils 43 5 per ent (with a definite shift to the left of the Arneth count), monocytes, 2 5 per cent, lympho-ytes, 52 per cent, eosinophils, 1 per cent, and basophils, 1 per cent

Two tests for sulphæmoglobin and methæmoglobin at an interval of fourteen days were negative Patient was discharged fit forty days after admission

Complications —One case of empyema and 5 cases of serous effusions occurred in the treated cases, whereas in the control series there were 3 cases of empyema, no serous effusions, and 1 case of lung abscess This lower incidence of empyema in the treated European cases showed a contrast to the higher incidence of empyema in the non European treated series In both groups more pleural serous effusions occurred in the treated cases than in the corresponding control series

Note on two fatal cases —Two deaths in the European control series were not included in the control deaths for reasons given in the résumé of these cases —

CASE 6112 —European male aged 44 admitted as a control case about the third day of illness with a bilateral lobar pneumonia, type I Three doses of polyvalent antipneumococcal serum (25 c cm each) were given daily from the day of admission The patient's condition became progressively worse, and on the evening of the third day in hospital it was decided to give him some M & B 693 Delirium was well marked, and 14 tablets were charted 2 tablets four hourly It is doubtful if the patient was able to swallow the last few doses He died on the fourth day after admission Post mortem there was lobar pneumonia involving the left apex and base and the upper and middle lobes of the right lung

Although admitted as a control case this has been excluded from the control deaths, owing to the fact that at least some M. & B. 693 was given when the patient was becoming moribund.

CASE 7692.—European male, aged 32, admitted with a right-lower-lobe pneumonia, type VII. Patient also had chronic nephritis, and sixteen days after admission there was a uræmic condition showing a blood-urea of 207 mg. per 100 c cm. Owing to this complication the case was excluded from the pneumonia control deaths. No post-mortem.

Mortality-rate —There were 2 deaths in the treated cases and 6 deaths in the controls, each out of a group of 27 cases, with a corresponding mortality-rate of 7·4 per cent. and 22 2 per cent respectively. This is the most significant aspect in the contrast of these two European series. The following are details of two fatal cases treated with M. & B. 693 :—

CASE 6468.—European male, aged 33, admitted about the third day of illness with right-upper-lobe pneumonia and pneumonic patches at both bases (confirmed radiographically), type I. Intensive treatment was begun on admission. Some improvement was manifested on the fourth-fifth day, followed by a recurrence of temperature. On the seventh day another intensive course of M. & B. 693 was given, followed by 2 tablets thrice daily. White-cell count 20,000–16,000. No methæmoglobin or sulphæmoglobin. Radiogram on relapse of temperature indicated a bilateral basal pneumonia. Total tablets given, 100. Condition became progressively worse, and patient died sixteen days after admission. No post-mortem. M. & B. 693 had apparently no effect on the course of this case.

CASE 8069.—European male, aged 74, admitted on the fourth day of illness with a left-lower-lobe pneumonia, type III. History of three weeks' cough before admission in a critical condition. M. & B. 693 was begun on the day after admission, and a total of 36 tablets was given. Patient died on the fifth day after admission. Post mortem there was basal and apical lobar pneumonia (left), and a healing infarct in the left ventricle.

SUMMARY AND CONCLUSION

The value of M & B. 693 in the treatment of pneumonia was investigated at the Johannesburg Hospital for a period of about three months The cases in the control and treated groups were unselected and representative of the local European and non-European population, except children The drug has in a number of cases produced vomiting and diarrhœa, which though not serious has occasionally interfered with its continuous administration. Sulphæmoglobinæmia and skin eruptions have been rare. Three cases treated with M & B 693 showed a considerable fall in the white-cell count, but there was only one case of agranulocytosis, and this patient recovered The occurrence of empyema differed in the treated series of the European and non-European groups, being lower in the former and higher in the latter than in the corresponding control series.

In the non-European group there were 71 cases treated with M. & B 693 and 86 controls, and the death-rates were 8 5 per cent and 18 6 per cent. respectively. In the European group there were 27 cases in each series, and the mortality was 7·4 per cent in the treated cases and 22 2 per cent in the controls.

Conclusion —So far as this series of pneumonia cases goes, M & B. 693 appears to affect favourably both the course of the disease and the case-mortality rate.

Thanks are due to Dr. A. H. Louw, superintendent of the Johannesburg Hospital, for permission to publish this work carried out at the hospital; to Dr. R. L. Girdwood for his valuable advice in conducting this investigation; to Dr. Mary Gordon for permission to treat the pneumonia cases in her wards and to Mr. D. Anderson for his assistance with the hospital records.

City Deep Ltd.

DR. DREOSTI

In July, 1938, an investigation was begun into the efficacy of M & B. 693 in cases of pneumonia with lobar consolidation in native mine labourers in the Central Native Hospital, City Deep, Johannesburg. The experiment herein reported consisted of treating 100 cases of pneumonia with this drug, 100 cases simultaneously treated without the drug serving as controls The experiment was concluded in the early part of November. When the experiment was begun the only available information about the drug was Whitby's (1938) valuable experimental work on animals. However, soon after the investigation was started the experience of Evans and Gaisford (1938) in the treatment of pneumonia in man became available. Their report of the absence of toxic reactions and the discussion on dosage were of great service at this stage. Although working with different material, it may be stated at once that our results were virtually the same as those they obtained.

The subjects of this investigation were 'mal native mine labourers, mainly in the age-group 20-4 employed, chiefly underground, on the City Deep and Nourse gold-mines in Johannesburg. These natives pass at least two medical examinations for fitness before being accepted for mine work. Natives who have successfully passed these medical examinations are then signed on for a contracted period of work averaging nine months. At the end of the contracted period they return to the native territories for several months or longer, and many then reapply for employment on the mines A large number of natives, however, on any mine, are in their first period of service There is, therefore, a continual addition of new, raw, unacclimatised labour to the labour force.

It is a well-known fact that pneumonia is commoner and usually more severe and has a higher mortality in natives recruited for mine work from Portuguese East Africa than in natives from British South Africa. For the purpose of this investigation the tribal factor can be ignored, since the distribution of the cases is virtually the same (see table I) Similarly, the age distribution is almost the same in both groups The distribution of lung lesions in both groups is given in the table.

The cases that were not treated personally by me were nevertheless seen by me for confirmation of the diagnosis and for the purpose of assessing the severity and progress of the disease The diagnosis and observations made may therefore be regarded as reasonably uniform for all the cases included in the report.

On admission all cases were provisionally designated as mild, moderate, or severe The table shows that the control cases on the whole were less severe on admission than the treated ones In view of the fact that there is no sick parade on the City Deep and that therefore every native who complains of feeling ill is admitted direct to hospital, it may be assumed that in most cases (both controls and treated cases) the patients were admitted to hospital within a day or two of the onset of the illness.

Effect of drug on the temperature —In judging the effect of the drug on the course of the tempera-

; must be remembered that many of the reated cases were only given the drug after he pyrexia had already been present for wo or three days, 41 were treated on the rst day of pyrexia, 3 on the second day, 7 on the third day, and 4 on the fourth ay In 10 of the treated cases, after the emperature had been normal for several ays and the drug discontinued, a sharp ise in temperature occurred When the rug was given again the pyrexia subsided apidly A similar recurrence of tempera ure was also observed in 8 of the control ases

As shown in fig 4 the cases treated with I & B 693 had on the whole a much nilder course than had the control cases see table)

Evans and Gaisford (1938) record that in ases treated with M & B 693 the rapid all in temperature did not quite correspond o a normal pneumonia crises A similar bservation was made in our series of cases With he rapid fall in temperature there was also fall in the pulse rate but the slowing of the ulse was not so marked as the fall in temperature n many cases the pulse rate only became normal forty eight hours, and sometimes much longer, after the temperature had returned to normal Similarly the chest signs took some time to clear up On the other hand, in only four of the treated cases was it necessary to give a sedative for restlessness or delirium after twelve hours' treatment Stimulants were only required in four treated cases Oxygen administration was not considered necessary and therefore not given to any of the treated cases

SEVERITY OF THE COURSE OF DISEASE (EXCLUDING DEATHS)

—	Mild	Moderate	Severe	Total
reated cases	72	27	1	100
ontrol cases	37	49	10	96

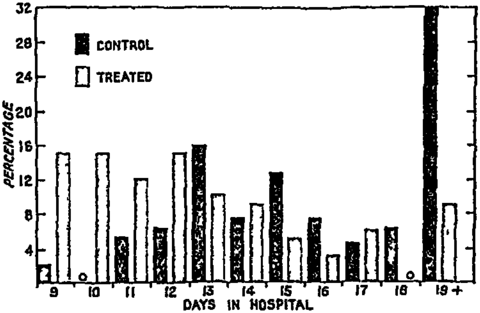


FIG 5—Chart of length of stay in hospital of treated cases and controls

Average stay in hospital—The average stay in the City Deep Hospital of a case of pneumonia is about eighteen days On discharge from hospital all pneumonia cases are given a minimum of fourteen days light surface work and then re examined by the medical officer of the mine, when a further period of light surface work may be given, depending on the rapidity of convalescence The average detention in hospital for the control cases was 18·5 days and for the treated cases 12·9 days (fig 5) Apart from the reduced period of stay in hospital one must not lose sight of the fact that, since most of the treated cases ran a mild course the convalescence was therefore more rapid and the necessary period of light surface work was less than in the control cases

Dosage—The most satisfactory form of dosage for routine treatment was found to be 2 g immediately on admission, followed by 1·5 g four hourly for the first twenty four hours Sixty four cases were treated with this initial form of treatment If at the end of this period improvement was observed, together with a fall in temperature to 100° F. or lower the dose was reduced to 1 g. four hourly If this response was not obtained, 1·5 g was continued for a further

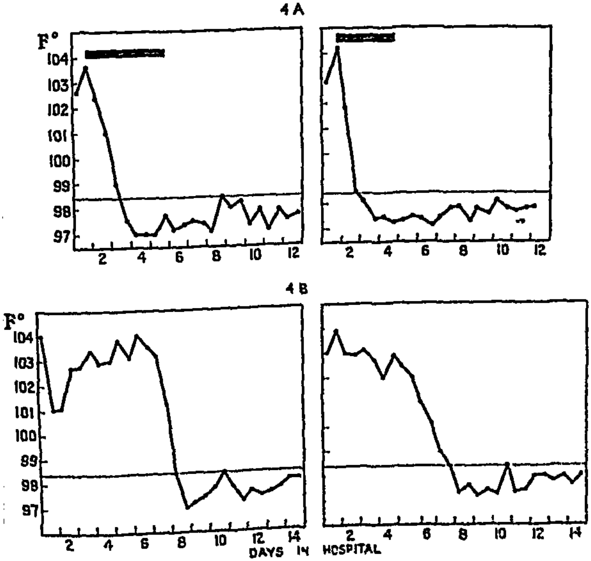


FIG 4—Typical temperature charts A, in treated cases, B, in controls

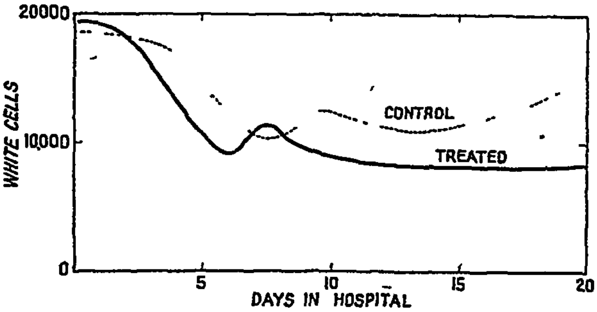


FIG. 6—Curves of leucocyte count in treated cases and controls.

twenty-four hours Finally, 0 5 g four-hourly was given until the temperature had been normal for two days. In 76 of the cases the drug treatment was given for four days or less A total of less than 25 5 g. was given to 65 cases; a total of 26 0–45·5 g. to 30 cases, and the remainder received over 46 g. The maximal quantity of drug administered to one case was 70 g

Vomiting occurred in 15 of the cases Most of these cases only vomited once, and the drug treatment was continued as outlined above. In a few cases it was found necessary to omit one or two doses and then to continue the treatment, when no further vomiting occurred. There was never any vomiting in the first twelve hours of the drug treatment

Mortality and complications—The case-mortality for pneumonia in the City Deep Hospital for the last three years averages 14 4 per cent During July and August, 1938, a comparatively mild form of pneumonia was encountered, as shown by the fact that of the 51 control cases treated during this period only 1 terminated fatally. The total mortality for the whole of the period of this investigation was 4 of the control cases (confirmed post mortem) and 0 of the treated cases In the treated group 2 cases of serous pleural effusion occurred, 1 sterile and 1 in which a scanty growth of hæmolytic streptococci and *Staphylococcus albus* was found; in the control group there was 1 sterile serous effusion and 1 pneumococcus empyema

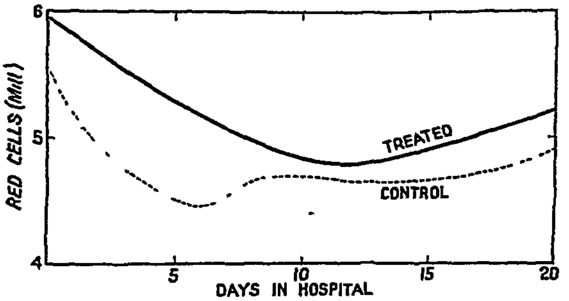


FIG 7—Curves of erythrocyte count in treated cases and controls

SUMMARY

M. & B. 693, without any other treatment apart from nursing, was given to 100 cases of lobar pneumonia in native mine labourers At the same time 100 cases of pneumonia in similar subjects were treated on the usual lines as controls No serum or vaccine was used in any of the cases recorded. All these cases were admitted during the South African winter and early spring months. The age-incidence, tribe, and location of the lung lesions were more or less the same in both groups

M. & B. 693 treatment was begun only when the disease was far enough advanced to place the diagnosis beyond doubt This often meant a delay of several days, even though pneumonia was suspected

During July and August a mild form of pneumonia was encountered, but the virulence increased in September and October.

The case-mortality in the series under review was 4 per cent. for the control series and 0 in the treated series. In the treated cases there was on the whole a very much shorter pyrexial period, a milder course without any severe toxæmia, and therefore a reduced period of convalescence as compared with the controls. Further, the drug appeared to inhibit any progress of consolidation

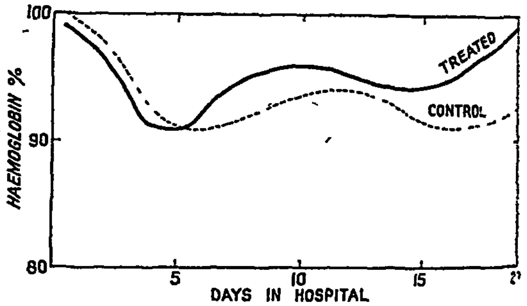


FIG 8—Curves of hæmoglobin percentage in treated cases and controls

BLOOD EXAMINATIONS

(*Reported by* DR W. A BURNETT)

At the outset of the experiment on the City Deep Ltd. it was decided to investigate any changes which might take place in the blood of control and treated cases Observations were made on the erythrocyte and leucocyte counts, the hæmoglobin percentage, and the erythrocyte-sedimentation rate The results of these examinations are summarized and a "free curve" is used to depict them graphically (figs. 6–9)

Fåhraeus (1921) indicates that the decrease in the suspension stability of the erythrocytes is probably a function of the breakdown of tissue proteins If this is accepted, the beneficial influence of M & B. 693 is apparent, because, when this drug is used, the

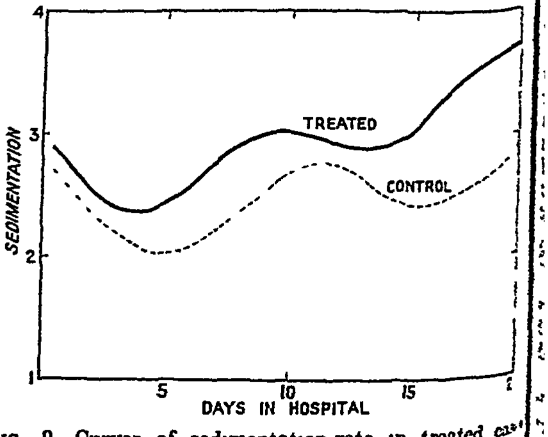


FIG 9—Curves of sedimentation-rate in treated cases and controls.

destruction of erythrocytes and hæmoglobin is less The sedimentation curves closely follow those for hæmoglobin, but whether the suspension stability is a factor of the hæmoglobin content and the red cell count is a moot point

The findings appear to indicate that (1) Up to the crisis M & B 693 produces a rapid decrease in leucocytosis, followed by a slight increase three days later and, subsequently, an uneventful recovery to normal values (fig 6) (2) The erythrocyte destruction with M & B 693 is slower and less pronounced and shows a better recovery rate (fig 7) (3) M & B 693 produces a more rapid destruction of hæmoglobin but is followed by a quicker and more sustained recovery to normal values (fig 8) (4) The blood-suspension stability is less affected by M & B 693, and recovery to normal values is reached earlier (fig 9)

CONCLUSIONS

M & B 693 appears to be a very effective and convenient drug in the treatment of pneumonia in native mine labourers There is strong clinical evidence to suggest that even better results might have been obtained by giving the drug as soon as the disease was suspected instead of waiting until the clinical diagnosis was beyond doubt

I have to thank Dr A J Orenstein, chief medical officer, Rand Mines Health Department, for affording me the opportunity of conducting this investigation, my colleagues, Drs C Berman and W A Burnett, of the City Deep Hospital staff for coöperation in dealing with the cases under their care, and the director of the South African Institute for Medical Research for providing the facilities for bacteriological examinations

(To be concluded)

TREATMENT OF CHRONIC MYELOID LEUKÆMIA

IMPORTANCE OF THE MYELOBLAST

By M C G Israëls, M D, M Sc Manc, M R C.P
FOULERTON RESEARCH FELLOW OF THE ROYAL SOCIETY

The course of a chronic myeloid leukæmia often ends rather abruptly The radiotherapy which has so far kept the patient well quite suddenly becomes ineffective, the anæmia steadily increases, and the patient dies The onset of this resistant phase is signalised in many patients by the appearance of myeloblasts in the blood Panton, Tidy, and Pearson (1914) noted that in 4 out of 29 patients, 3 of whom were under twenty years old, the appearance of myeloblasts was rapidly followed by death Piney and Riach (1932) described in detail a case of chronic myeloid leukæmia in which the appearance of myeloblasts coincided with failure to respond to radiotherapy Arendt and Gloor (1932) found that the terminal stage of the disease was sometimes accompanied by showers of myeloblasts, further radiotherapy was then possibly dangerous, Forkner (1938) made similar observations Other authors, such as Hoffman and Craver (1931) and Watt (1936) do not mention this change, their patients having died of intercurrent disease

Myeloblasts are sometimes found in the blood of patients who have not received any treatment but, as will be seen from the following case records they are not apparently of the same grave significance as they are at later stages, provided that they disappear when treatment is given

Since there is still some confusion, it is necessary to state that the term "myeloblast" is here restricted to the *oxidase negative* primitive cells of the myeloid series, when oxidase positive granules appear, the cells are classed as promyelocytes, this question has been fully discussed elsewhere (Israëls 1936) The necessity of making this distinction is illustrated by the contradictory results obtained by Radiojević (1932), who includes oxidase positive cells among the "myeloblasts" Two of his patients, who both had initial "myeloblast" counts of 41 per cent, died, although the counts were reduced by treatment, but a third patient with 35 per cent survived for two and a half years The oxidase stain I have used is copper benzidine peroxide as used by Sato and Sekiya (1926)

The case records given here are of adult patients with chronic myeloid leukæmia in whose blood myeloblasts appeared *during the course of the disease* The blood-counts in the table are limited to those at significant stages, being selected from the complete records

CASE-RECORDS

Case 1—A traveller, aged 43, gave a two years' history of ill health—fatigue, dyspepsia, pallor and loss of weight A diagnosis of chronic myeloid leukæmia had been made, and arsenic and some radiotherapy had been given successfully, he was able to return to work About two months before admission to the Manchester Royal Infirmary he noticed swelling of the abdomen On admission the spleen was grossly enlarged, other signs were not notable The blood count was typical —

Red cells	3,110 000	Polymorphs	61 5 %
White cells	142 000	Lymphocytes	7 0 %
Hæmoglobin	60 %	Monocytes	1·0 %
Colour-index	0 86	Eosinophils	2 5 %
Nucleated red cells	2 per 400 white cells	Basophils	6 0 %
		Metamyelocytes	10 5 %
		Myelocytes	12 5 %
		Myeloblasts	0

He was given a course of radiotherapy, and the white cells showed a satisfactory reduction After the fourth treatment the white cell count again increased, and oxidase-negative myeloblasts were present His condition became steadily worse in spite of further radiotherapy, and eight weeks after admission his relatives took him home, where he died shortly afterwards

Case 2—A hat-worker, aged 32, first attended the out-patients' department in February, 1933, complaining of intermittent priapism An enlarged spleen was found, and his blood-count revealed typical myeloid leukæmia —

Red cells	3 960,000	Polymorphs	[illegible]3 0 %
White cells	107 000	Lymphocytes	5·0 %
Hb	70 %	Monocytes	[illegible]·0 %
C I	0 [illegible]	Eosinophils	0 5
Nucleated red cells	1 per 400 white cells	Basophils	0
		Metamyelocytes	30 [illegible] %
		Myelocytes	[illegible] %
		Myeloblasts	0

He was given radiotherapy and remained well for twelve months In March, 1934 he was admitted to hospital because of failing general health, and his blood-count then showed that myeloblasts were present Radiotherapy was continued, and there was a temporary improvement in his general condition, but in June of that year he was readmitted in a very weak state with both liver and spleen greatly enlarged He was very anæmic and there were now 15 per cent. of myeloblasts His condition became steadily worse, and he died two and a half weeks later At autopsy the femoral bone marrow showed large groups of myeloblasts among the general hyperplasia of granular leucocytes of all types.

CASE 3.—A slipper-hand, aged 36, was admitted to hospital in October, 1934, with a ten months' history of pain in the left hypochondrium, fatigue, and loss of energy. The spleen was found to be moderately enlarged, and enlarged lymph-glands were found in most sites. The blood-count showed myeloid leukæmia:—

Red cells ..	. 3,390,000	Polymorphs	. 54 5 %
White cells	. 158,000	Lymphocytes	.. 1 75 %
Hb . .	54 %	Monocytes ..	. 0
C I . .	0 79	Eosinophils	. 0 5 %
Nucleated red cells	5 per 400 white cells	Basophils . .	5 0 %
		Metamyelocytes	. 10 75 %
		Myelocytes	. 27 0 %
		Myeloblasts	.. 0 5 %

He was given iron and arsenic (liq. arsenicalis 9 minims daily) and a course of radiotherapy. He responded very well and was able to return to work He remained well until July, 1936, when he complained of an enlarged and painful spleen From this time his condition deteriorated; his anæmia and the percentage of myeloblasts in the blood steadily increased, and, in spite of the fact that renewed radiotherapy had reduced the leucocyte count, he died on Sept. 7. At autopsy the femoral bone-marrow showed considerable hyperplasia; there were numerous neutrophil and eosinophil granulocytes and among them a few groups of myeloblasts.

CASE 4.—A housewife, aged 40, was admitted to hospital in July, 1935, complaining of increasing enlargement of the abdomen, which had been first noticed a year before. At that time myeloid leukæmia had been diagnosed, and one treatment with radiotherapy had been given at another centre. The spleen was enormous and the liver also considerably enlarged. The blood-count showed:—

Red cells ..	.. 2,004,000	Polymorphs	. 30 25 %
White cells	.. 468,000	Lymphocytes	. 2 0 %
Hb... ..	. 42 %	Monocytes ..	. 0
C I	. 1 05	Eosinophils	. 2 75 %
Nucleated red cells	1 per 400 white cells	Basophils .	.. 2 75 %
		Metamyelocytes	. 9 0 %
		Myelocytes	. 51 5 %
		Myeloblasts	. 1 75 %

She was given iron, arsenic, and radiotherapy, and responded excellently. She remained well until November, 1937, when she complained of increasing size of the spleen and great weakness. Her anæmia increased, and myeloblasts reappeared in the peripheral blood. She was readmitted to hospital on Dec. 16 because of a severe hæmatemesis and epistaxis. Sternal puncture showed:—

Polymorphs ..	.. 1 6 %	Hæmocytoblasts	.. 0 8 %
Myelocytes ..	.. 0 8 %	Normoblasts..	.. 0
Myeloblasts ..	.. 96 8 %		

The epistaxis was checked, but the patient died five days later. Microscopical examination of the femoral bone-marrow after the autopsy showed that it was very hyperplastic, the cells being nearly all myeloblasts; myelocytes were few and normoblasts rare.

CASE 5.—A man aged 40, first seen in October, 1934, had been treated six months previously, in America, for chronic myeloid leukæmia and now reported for further treatment. The spleen was moderately enlarged, and no other signs were detected. The blood-count showed:—

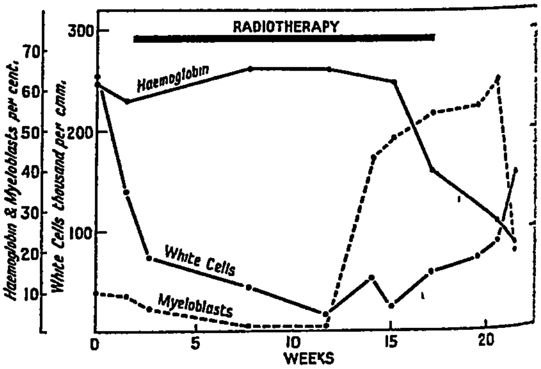
Red cells ..	.. 5,180,000	Polymorphs	.. 57 5 %
White cells	.. 44,800	Lymphocytes	.. 6 0 %
Hb	. 94 %	Monocytes ..	.. 0 5 %
C I .. .	. 0 9	Eosinophils	. 1·5 %
Nucleated red cells	0	Basophils ..	.. 1 5 %
		Metamyelocytes	.. 17 0 %
		Myelocytes	.. 16 0 %
		Myeloblasts	.. 0

Control was easily maintained with radiotherapy until December, 1935, when he was admitted to hospital on account of increasing dyspnœa and pallor and because he had developed a rash of flattened raised nodules, none bigger than ¼ in. across, on his back, arms, thighs, and chest. The spleen and liver were now much enlarged. The blood count showed increased anæmia and the presence of myeloblasts. He died a week after admission. The autopsy showed the femoral bone-marrow to be intensely hyperplastic; areas in which myeloblasts predominated alternated with areas in which granulocytes predominated. The dermis in the skin nodules was infiltrated with myeloblasts and a few granulocytes.

CASE 6.—A greengrocer, aged 28, first seen in March 1937, had been quite well up to three months previously, when he began to complain of weakness, backache, and, later, pain in the left hypochondrium. A very enlarged spleen was found, but there was no enlargement of the liver or lymph-glands. The blood count showed:—

Red cells .	.. 3,488,000	Polymorphs	.. 37 5 %
White cells	.. 257,000	Lymphocytes	. 1 5 %
Hb .. .	.. 62 %	Monocytes ..	. 1 5 %
C I .. .	.. 0 88	Eosinophils	4·25 %
Nucleated red cells	4 per 400 white cells	Basophils ..	. 6 5 %
		Metamyelocytes	. 8 0 %
		Myelocytes	30 75 %
		Myeloblasts	10 0 %

The figure shows that the application of radiotherapy reduced the proportion of myeloblasts and the total white-cell count, and there was some improvement in the anæmia and in the general condition. In June, 1937, however, he felt much worse; blood examination revealed myeloblasts in increased numbers, and, in spite of some further radiotherapy, he rapidly became worse and died on August 1[illegible]. The femoral bone-marrow was very hyperplastic and contained many myeloblasts and many lymphocytes.



Graphs showing effect of radiotherapy on chronic myeloid leukæmia (see Case 6).

CASE 7.—A retired manufacturer, aged 68, first seen in September, 1937, had complained of loss of appetite, loss of weight, and epigastric pain for the previous two months. A very enlarged spleen was found, but no other notable signs. The blood-count was typical of chronic myeloid leukæmia:—

Red cells ..	.. 3,870,000	Polymorphs	. 51 25 %
White cells	.. 292,000	Lymphocytes	. 0 75 %
Hb	. 60 %	Monocytes ..	. 0
C I .. .	. 0 79	Eosinophils	.. 0·25 %
Nucleated red cells	0	Basophils ..	.. 1 5 %
		Metamyelocytes	. 19 5 %
		Myelocytes	26 7
		Myeloblasts	0

Sternal puncture showed a similar picture: myeloblasts 2 5 per cent., normoblasts 3 per cent, and the rest granulocytes. He was given iron and increasing doses of arsenic. Although the patient felt improved the blood-count showed little change even after five weeks' treatment He was therefore sent for radiotherapy, which quickly reduced the white cell count, but the anæmia was not improved. In January, 1938, the patient felt very weak, and the myeloblasts in the blood were much increased He did not attend after Jan. 20, and his death was reported by his doctor two weeks later

DISCUSSION

These case records, summarised in the accompanying table, illustrate the fact that for the proper control of the treatment of chronic myeloid leukæmia three important guides are obtained from the blood count

BLOOD-COUNTS IN CHRONIC MYELOID LEUKÆMIA

Case	Count and date	Myeloblasts (per cent)	Hæmoglobin (per cent)	White cells (thousands per c mm)
1	(*a*) Nov 10, 1934 (*b*) Dec 7, „ (*c*) Dec 29, „	0 0 43	60 46 43	143 64 273
2	(*a*) Feb 28 1933 (*b*) May 9, „ (*c*) June 29, 1934	0 0 30	70 — 29	102 42 80
3	(*a*) Oct 23, 1934 (*b*) Mar 14, 1935 (*c*) Sept. 5, 1936	0 5 0 40	54 98 14	158 43 28
4	(*a*) Aug 27, 1935 (*b*) Jan 2, 1936 (*c*) Dec 16, 1937	1 75 0 94	42 92 16	468 12 5 96
5	(*b*) Oct. 19, 1934 (*c*) Dec 27, 1935	0 77	94 28	45 330
6	(*a*) Mar 4, 1937 (*b*) April 27, „ (*c*) July 29, „	10 1 63	62 66 27	257 41 90
7	(*a*) Sept 23, 1937 (*b*) Dec 16, „ (*c*) Jan 20, 1938	0 0 72	60 60 42	292 121 16

The counts given show the condition (*a*) when first seen, (*b*) when fully treated, and (*c*) near the termination

In order of importance these are the proportion of immature leucocytes, the anæmia, and the total leucocyte count

The *proportion of immature leucocytes* is an excellent guide to the severity of the leukæmia, as several authors have pointed out, and it should steadily diminish under successful treatment Myeloblasts are especially important, it is quite common to find a small percentage of myeloblasts when the patient first attends for diagnosis (cases 3, 4, and 6) If they disappear rapidly under treatment, the prognosis is as a rule reasonably good—case 3 lived for two years and case 4 for three years after the commencement of treatment—but, if they increase in proportion, especially with radiotherapy, the prognosis is bad, irrespective of any reduction in the total leucocyte count, and treatment will be ineffective and survival usually measured only in weeks

When the patients recorded here, except case 6, were given radiotherapy, the myeloblasts, if present, disappeared from the blood shortly after treatment was initiated They returned after periods varying from a few weeks to two and a half years, and their return was invariably the signal that the terminal phase of the illness had begun Their reappearance was sometimes remarkably rapid, and the myeloblasts in the blood rose to a very high percentage (case 4), sometimes it was more gradual, and the myeloblasts were less prominent (cases 2 and 3) These differences were reflected in the relative numbers of myeloblasts as compared with polymorphonuclear cells and myelocytes found in the bone marrow at autopsy—in case 4 at biopsy In those patients who had at first no myeloblasts in the blood the same variation of rapidity and completeness of the myeloblastic transformation was seen (cases 1, 5, and 7), and a steadily increasing percentage of myeloblasts had a similar fatal significance The prognostic value of this myeloblastic change was independent of any reduction in numbers that might be brought about by radiotherapy (cases 3 and 7)

This mode of termination has been common among my patients, myeloblastic transformation having occurred in 10 out of 21 fatal cases whose cause of death was known It seems reasonable therefore to insist that myeloblasts should be carefully looked for and their reaction to treatment, when the patient first attends, watched. If they appear, or fail to disappear, radiotherapy should be stopped, since it seems that it can do no good in these circumstances, in fact Béclère (1930) and Isaacs (1932) have suggested that it may even aggravate the condition The differential white cell count is thus an important guide for the control of the treatment of this disease

The *anæmia* always responds to effective treatment When the hæmoglobin fails to rise, the outlook is not so hopeful (cases 1, 6, and 7), and, if it falls, the prognosis is grave Increasing anæmia is often the first sign that a phase of resistance to radiotherapy is about to appear, and it often runs parallel with the appearance of myeloblasts The anæmia in chronic myeloid leukæmia is most commonly of the hypochromic microcytic type, sometimes normocytic, and rarely megalocytic The microcytic anæmia responds well to iron and should be treated with full doses—e g, ferrous chloride 18 grains daily—whether radiotherapy is given or not, iron should also be given to the patients with normocytic anæmia. The megalocytic type does not seem to respond either to liver therapy or to iron

The *total leucocyte count* is the least reliable of these guides, and Forkner (1938) has said, with some justice, that it is inadvisable to use it alone as an indication for starting, stopping, or resuming treatment. However, if the anæmia is improving and the immature leucocytes are disappearing, the total leucocyte count should be watched, since a count of less than 10,000-20,000 per c mm is undesirable Enough has been said under the previous two headings to emphasise that by itself the total leucocyte count is an unreliable guide to the progress of treatment

We have seen that the satisfactory results of radiotherapy may be suddenly interrupted by the appearance of myeloblasts, with an invariably fatal result The reasons for this myeloblastic transformation are unknown, and Isaacs (1932) has brought forward evidence which suggests that the radiotherapy itself may be implicated Consequently it has been suggested that radiotherapy should be held in reserve and other forms of treatment tried *first* Forkner (1938) has especially protested against the use of a high leucocyte count as an indication for beginning radiotherapy He points out that if neither the anæmia nor the proportion of immature leucocytes is increasing and if significant symptoms, such as excessive fatigue, pressure of an enlarged spleen, and hæmorrhages, are not serious, the patient may remain symptomatically well for considerable periods The course of such cases as case 7 in this series in which myeloblastic transformation rapidly followed the beginning of radiotherapy, adds point to his contention Thus before radiotherapy is begun the anæmia should be energetically treated, and this will often bring about a striking improvement, as exemplified by the following case-record :—

A man, aged 61, was sent to hospital because of increasing weakness and pallor. There were no notable signs, and a fractional gastric analysis showed complete achlorhydria The blood-count was :—

Red cells	1,980,000	Polymorphs	52 %
White cells	74,500	Lymphocytes	12 %
Hb	17 %	Monocytes	0
C I	0 43	Eosinophils	0
Nucleated red cells	2 per 500 white cells	Basophils	6 %
		Metamyelocytes	13 %
		Myelocytes	17 %
		Myeloblasts	0

Sternal puncture confirmed the diagnosis of myeloid leukæmia, and no myeloblasts were seen. He was first treated with ferrous chloride gr. 18 daily, and in four weeks his red cells had risen to 3,660,000 per c.mm. and the hæmoglobin to 62 per cent, the immature leucocytes being simultaneously reduced by about 10 per cent. ; there was corresponding general improvement.

When the maximal improvement has been obtained from anti-anæmia treatment, radiotherapy can be begun if the patient's condition is still unsatisfactory. Forkner (1932), Stephens and Lawrence (1936), and others have claimed good results from arsenic treatment, but experience of this at Manchester has not been encouraging.

SUMMARY

(1) Seven cases are described of patients with chronic myeloid leukæmia who had myeloblasts in the peripheral blood (2) When the patient has not received treatment, the presence of myeloblasts is not of serious significance if they disappear when radiotherapy is begun. If they increase, the outlook is grave, irrespective of any changes in the total leucocyte count. (3) When myeloblasts appear during treatment, they usually signify that radiotherapy is no longer effective, and that, whatever the total leucocyte count, death is imminent. The completeness of the myeloblastic transformation in the bone-marrow is parallel to that in the peripheral blood (4) The effectiveness of treatment is best judged by the diminution of the proportion of immature leucocytes and by the improvement in the anæmia. (5) The anæmia should be thoroughly treated, and radiotherapy may be postponed, provided that the immature leucocytes do not increase and the patient's clinical condition warrants it.

This work has been carried out in the department of clinical investigation and research, the University and Royal Infirmary, Manchester I am indebted to the director of the department, Dr. John F. Wilkinson, and other members of the honorary staff of the Manchester Royal Infirmary who have kindly granted me the necessary facilities.

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TORSION OF THE APPENDIX OF THE TESTIS

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Torsion of the testicle or spermatic cord ha long been a recognised clinical entity ; but torsi of the appendix of the testis or hydatid of Morgagni is not so well known The most recent British text book on genito-urinary surgery does not refer to it

The first mention of the condition is as recent a 1922, when Colt described it Mouchet's (1928) writing have done much to make the condition well know on the Continent, whence most of the reported ca have come Dix in 1931 reviewed the 45 cases o record and added 2 from his own practice. In 193 only 2 cases had been described in North America literature (Foshee 1932) but more recently Lambe and Smith (1938) have described 3 cases occurrin within three years in a school of 650 boys.

These remarks suggest that torsion of the append of the testis is very rare ; but the greater number o cases reported lately and the fact that I have see 3 within the last four years in the children's out patient department at the Ulster Hospital show th it only needs to be more widely recognised.

ÆTIOLOGY

The condition is seen at all ages, but chiefly perhap between 11 and 14 years In the cases on record one patient was only eleven months old and thre were over 60 Among my cases one was a baby o thirteen months and the two others were both 12 year old. Either left or right side may be affected Ther is no known cause of the torsion. One of th American cases described started when the patien was kicked on the scrotum by a pet rooster (Rhode 1935) In one of my cases the first attack began as th patient sat by the fire, and the second attack wa precipitated by his jumping down from a hospita stool after having his finger dressed. Appendage vary much in size and in the length and fixatio of their pedicle (fig 1) The larger the appendag and the narrower its pedicle, the greater the chanc of torsion.

As with all pedunculated masses liable to underg torsion, several attacks may precede the one tha brings the patient to operation. The twist may be partial and undo itself, or one twist may not be sufficient to interfere with the circulation of the appendage Two of my patients had had precedin attacks. In one the first attack occurred two weeks in the other three days, before he was seen I both these cases there was only one complete twist In the baby there were two complete twists

SYMPTOMS AND SIGNS

The pain may be slight or severe In the bab of eleven months the mother did not think that h had any pain ; she brought him to hospital becau of the scrotal swelling. In one of the boys the pa was so severe as to cause slight shock, with rap pulse and cold clammy skin Such severe pain unusual in torsion of the appendage of the testi it is commoner in torsion of the testis The pa is referred to the testis and to the iliac fossa or to th groin on the affected side.

Constitutional symptoms are usually mild. Vomitin is uncommon. The temperature is as a rule norm but temperatures of 100° F have been recorded. These milder symptoms distinguish this condition from torsion of the testis In no case reported were there any urinary symptoms

The most significant sign in the acute stage is swelling of the scrotum The scrotal skin is œdematous and slightly red, the œdema may extend slightly over to the unaffected side It is evident within three hours of the onset of the pain and is out of *all* proportion to the minuteness of the lesion It is the most valuable point in diagnosis in the whole syndrome The testicular mass is swollen and tender, and this tenderness, with the small hydrocele *present in all acute cases, prevents* accurate palpation of the testicular elements The cord above the testis is slightly swollen In the more chronic cases the œdema has subsided and the testicular reactionary swelling has disappeared so that a small pea like body, the twisted appendage may be palpated in the sulcus between the caput majus of the epididymis and the upper pole of the testis The testicle hangs in its normal relation to the vas deferens

DIAGNOSIS

Once the condition is thought of, the diagnosis is not difficult A torsion of the testicle and one of the appendix of the testicle are the only two conditions that cause such rapid swelling and œdema of the scrotal coverings The milder the general symptoms, the more probable is a twisted appendage If the testicle hangs normally and the vas enters it in the normal relationship, the diagnosis is torsion of the appendix testis and not of the testicle

Orchitis and epididymitis do not cause œdema of the scrotal skin until late in the disease, when the œdema is localised to the immediately adjacent area. At this stage the condition cannot be confused with torsion of an appendage Dix (1931) aptly remarks that cases diagnosed as acute epididymo-orchitis in children are probably torsion of the testicular appendage

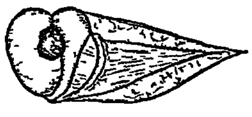

FIG 2—Sketch made at operation, showing twisted appendage of case 3 It was dark red and swollen, lying in the sulcus between the upper pole of the testis and epididymis

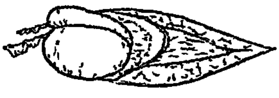

FIG 3—The appendage shown in fig 2 has been untwisted and become more normal in shape and size *The appendage of the epididymis present is also shown Both* appendages are larger than is usual and were removed

TREATMENT

The condition is not dangerous to life, and with conservative treatment the swelling will gradually subside and the process be at an end in about a fortnight. This end result can safely be brought about by operation and the suffering of the patient and his stay in bed appreciably shortened Operation is devoid of risk, and pain is immediately lessened These patients may be allowed up a couple of days after operation Operation should be urged if the surgeon suspects torsion of the testicle

Operation—An incision 1–2 in long, depending on the size of the testis to be delivered, is made over the pubic spine in line with the structures of the cord, as in the operation for varicocele The testis is pressed up into the wound, and the coverings of the tunica are incised. These coverings will be found slightly œdematous. When the parietal tunica vaginalis is cut through, about a drachm of straw coloured, sometimes blood-stained, fluid escapes The testicular and epididymal surfaces appear normal Lying in the sulcus between the caput majus of the epididymis and the upper pole of the testis, and attached to the upper pole of the testis near the sulcus, is found a small dark red body, usually about the size of a small pea In one reported case it is said to have been as large as an English walnut. It will be found that one or two complete twists of its pedicle have caused a hæmorrhagic infarction of the appendix testis or of the appendix epididymis These twists may be clockwise or counterwise The narrow pedicle is ligatured and the appendage removed The tunica vaginalis is left open Some authors recommend turning it inside out, but this appears to me unnecessary The wound is closed, and convalescence should be uneventful

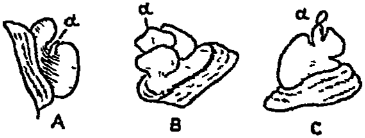

FIG 1—Testes of full time fœtus (natural size) A, a small appendage (*a*) of the testis of the more usual size, B, a large appendage (*a*) of the epididymis looked at from above; C, the same appendage looked at from the side

CASE RECORDS

CASE 1—Infant aged thirteen months The mother had noticed a swelling, which had only been present for one day, in the right side of the baby's scrotum and could not account for it The child had remained in his usual good health, taking his food well and showing no unusual symptoms, and did not appear to be in pain The house surgeon found the scrotum swollen, œdematous and somewhat red and the testis enlarged and tender The cord seemed thickened He instructed the mother to bring the child back two days later Three days from the onset, when seen by me, the child appeared to be quite well His temperature was 98 8° F, The right side of the scrotum was swollen, the skin being œdematous and slightly red The testicle was tender and appeared to be enlarged The tenderness made it impossible to palpate the testicle minutely A diagnosis of a torsion of the testicle or of its appendage was made and operation undertaken about an hour later Operation showed a typical dark red twisted appendage Its base was ligated and the appendage removed. Recovery was uneventful

CASE 2—A boy aged 12 was brought to the Ulster Hospital because of acute pain in the left side of his scrotum and of his abdomen He stated that he had had the same pain, but not so severe, a fortnight previously The present pain started about 7 30 that morning and was so severe that he felt faint. When seen three hours later at the hospital he was pale and mildly shocked with cold clammy skin and a pulse rate of 104 The left side of the scrotum was œdematous, red and swollen The testicle was tender and enlarged, but no details could be [illegible] The cord bore the normal relation to the and was slightly thickened A diagnosis of twisted appendix of the testicle was made. At operation a few hours later a testicular appendage with hæmorrhagic infarction was removed. It had been twisted through one complete turn in an anti-clockwise direction.

CASE 3.—A boy aged 12. Three days before coming up to the hospital he had been sitting in front of the fire, when he felt a severe pain in the left groin. He did not vomit and took his evening meal. The pain persisted till he fell asleep that night. The next day he was quite well, and he remained so till the afternoon of the morrow, when he came to hospital to get a finger dressed. When jumping down from the stool in hospital he again felt a severe pain in the left groin. He went home, but the pain got gradually worse, and five hours after the onset of the pain he noted that the scrotum was swollen and the testicle tender. He slept well that night and reported at hospital on the morrow.

When seen by me the scrotum was œdematous, red, and swollen. The œdema was on the left side but spread slightly over to the right side. The testicle was enlarged and very tender, so that details could not be palpated, but the vas deferens bore the normal relation to the testicle. A diagnosis of twisted appendage of the testicle was made and operation performed a few hours later. The findings were like those in case 2. There was about a drachm of straw-coloured fluid in the tunica vaginalis, and in the sulcus at the upper pole of the testis was a dark red twisted appendage of the testis (fig. 2). It had undergone one complete clockwise twist. It was removed in the usual manner. There was also present in this boy an appendix of the epididymis, but it was not twisted (fig. 3). This was also removed in case it should become the seat of a similar incident.

SUMMARY

Three cases of torsion of the appendage of the testis (hydatid of Morgagni), treated by surgical ablation of the appendage, are described. The constitutional symptoms are, as a rule, milder than those of torsion of the testis, and the most important local sign is scrotal œdema.

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ANEURYSM OF BOTH POPLITEAL ARTERIES

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THE following case is not unique, but it was presented to me in such a way that I had to consider the natural history and the treatment of popliteal aneurysm in the same patient. It caused me some anxiety and made me refer to much of the literature on the subject, which gave me little confidence or comfort The condition is not very common in these days, and there is therefore in recent writings on the subject a wealth of general statement and a scarcity of detailed case records. I am writing a report of this case, hoping that it may help someone who has a similar problem to solve

A big heavy man, aged 73, was squatting in front of the fire using the bellows. He suddenly felt a pain behind the right knee, and the whole of the leg below the knee went "cold and dead." He had previously been in very fair health; there was a history of attacks which might have been those of angina pectoris; he had for some time had pains in both calves on walking; six months previously he had spent six weeks in bed owing to swelling of the left leg, diagnosed as phlebitis.

Examined four hours after the onset of the pain the right leg below the knee was cold and white; there was no pulsation in the dorsalis pedis and posterior tibial arteries. There was no gross arterial or cardiac disease. A diagnosis of embolism of the bifurcation of the popliteal artery was made.

In the left (healthy) leg there was no pulsation in the arteries of the foot, but there was a huge aneurysm of the popliteal. The upper limit was palpable on the inner side of the thigh, apparently above the opening of the femoral artery in the adductor magnus; the lower limit was on the outer side of the leg, ½ in. below the head of the fibula.

I decided against an immediate exploration of the right popliteal for various reasons. Five days later it was obvious that there was going to be only a very limited recovery of life below the knee. I amputated through the lower third of the thigh and, in doing so, found that the cause of the gangrene was thrombosis in a popliteal aneurysm. The stump healed by first intention. The Wassermann reaction was negative.

The explanation seemed to be that an aneurysm had formed as a result of local arterial disease, owing to the position of acute knee flexion when squatting before the fire the weak artery had been kinked and clotting had occurred in the sac I thought that most of the blood for the supply of the leg must have been passing through the sac, for otherwise its obliteration would not have been followed by gangrene This was the thought that made me so anxious about the treatment of the aneurysm in the surviving leg; for, if spontaneous thrombosis in the right popliteal aneurysm was followed by gangrene, why should thrombosis induced by surgical ligature have any other effect? Excision of the aneurysm I considered impracticable on account of its size, but it was thought possible that some form of plastic operation to reduce the bulk of the sac might be possible in addition to ligature. It seemed essential to do something, since it was noted that in certain positions of flexion of the knee the foot became cold. It was further thought that the attack of swelling called "phlebitis" might have been due to venous obstruction following an increase in the size of the sac.

I finally decided that the risk of spontaneous thrombosis was so high that an operation ought to be undertaken, and for help in reaching this decision I am deeply indebted to Sir Thomas Dunhill, who saw the patient with me, and to Mr. Wilfred Trotter, with whom I discussed the problem and who gave me the stimulating comment that he had never regretted operating on a popliteal aneurysm, provided the bulk of the sac was in some way reduced.

The hip was flexed and everted, the knee flexed. An incision was made on the inner side of the thigh from Hunter's canal to the level of the knee-joint. The sartorius was retracted medially; the insertion of the adductor magnus below the opening of the femoral artery was divided; the femoral artery and the medial and upper limits of the sac were exposed. The femoral artery was ligatured immediately proximal to the sac; pulsation in the sac stopped at once. At the moment of ligature and at intervals of half an hour afterwards for three hours papaverine was injected hypodermically in the hope that spasm from the handling of the artery might be diminished The sac was incised and as much clot as possible was removed. There was fresh arterial bleeding from small vessels inside the sac, a fact which, though worrying, was at the same time encouraging, suggesting some collateral circulation. (I am aware that such bleeding might signify a possible recurrence of the aneurysm at some distant date, but that was a far lesser evil than immediate gangrene) I controlled the bleeding by stitching the walls of the sac together from within the sac, and by this procedure I greatly reduced the bulk of the sac in its middle and inner portions, the distant portions of the sac in the outer and lower parts of the popliteal fossa were untouched

After the operation there was never any doubt that the leg was viable There has been no return of pulsation in the vessels of the foot, but the foot remains warm in all positions of the leg The patient is walking well with an artificial leg

COMMENTARY

The outstanding interest of this case to me is the difference between the dire result of the natural cure of the aneurysm in the one leg and the successful result of the surgical treatment in the other Spontaneous thrombosis led to gangrene of the right foot, ligature improved the circulation of the left foot It has been suggested to me that a possible explanation lies in the probable extension upwards of the clot in the natural thrombosis, obliterating the origins of the collateral vessels, and the more limited clotting induced by the ligature This explanation I find difficult to believe It is certain that some clotting took place above the ligature, and indeed in the historical treatises on popliteal aneurysm some emphasis is laid on the importance of ligaturing well above the immediate limit of the sac

The two certain points of difference on the two sides were the reduction in the bulk of the sac at operation and the injection of papaverine

Duncan Fitzwilliams[1] has recorded two cases in which the femoral artery was ligatured one was successful, in the other gangrene followed the operation The cases are reported to show, among other points, the importance of pre operative arteriography, it is suggested that the absence of a collateral circulation, which can be demonstrated by radiography, should make one advise against a ligature until attempts have been made to open up a collateral circulation I do not think that this deduction is sound It seems to me to allow too little for the effects of the aneurysm produced by the mere presence of a tumour in a confined space The limits of the popliteal fossa are very rigid, the presence of a large swelling within these rigid walls may well compress the potential collateral vessels, which may fail to show radiographically although well able to transmit blood when relieved of the external pressure of the aneurysmal sac

Since I treated this patient I have seen a man who was under the care of Mr Gwynne Williams in University College Hospital suffering from popliteal arterial obstruction not due to an aneurysm I am concerned here only in emphasising those features of the case which are relevant to my discussion on popliteal aneurysm

A healthy man, aged 26, was involved in a motorcycle accident two and a half years ago He received some sort of injury to his right calf There is no record of the condition of the circulation of the foot immediately after the accident When he recovered from the accident and began to walk again he found that he could only walk twenty yards before such pain developed in the calf that he had to rest After a few minutes he was able to walk again He has now so far recovered that he can walk half a mile before he has to stop The right foot has seemed to him colder than the left, but there is now no difference of temperature between the two feet There is no pulsation in the right popliteal, posterior tibial, and dorsalis pedis arteries On the inner side of the right knee there is a palpable blood-vessel about the size of the superficial temporal—presumably the anastomotica magna No such vessel is palpable in the other leg

I interpret the physical signs in this patient as demonstrating some sort of block in the popliteal artery due to the accident The collateral circulation was adequate to maintain life in the leg but only limited function, but it is improving

According to published reports and text-books the results of ligature of main limb vessels in young adults vary It seems, however, reasonable to suppose that the collateral circulation has more chance of being efficient if the obstruction to the main vessel of the limb is gradually produced, and one would expect thrombosis of the main vessel of the limb to be safer in a case of aneurysm than in a case of injury

CONCLUSIONS

In these two cases we are able to compare the results of pathological thrombosis in a presumably healthy artery in a young man and in an aneurysm in an old man, and the results of a surgical operation An examination of these facts seems to me to lead to the following conclusions about the treatment of popliteal aneurysm

(1) Ligature should be combined with excision or some form of plastic operation

(2) If thrombosis occurs spontaneously in a known popliteal aneurysm, an operation should forthwith be performed to turn out some of the clots and to diminish the size of the sac

(3) Papaverine hypodermically administered may help to maintain the collateral circulation during an operation or after a spontaneous thrombosis

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[1] Fitzwilliams D C L *Proc R Soc Med* 1938 31, 301

UREA CLEARANCE IN HÆMATEMESIS

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Considerable interest has been shown in the rise of blood-urea which accompanies any severe bleeding from stomach or duodenum The cause of the "uræmia" is still doubtful, and it is most probably due to several factors of varying importance in different cases The question of functional renal impairment has been raised by Alsted (1936) and Witts (1937), but published data on renal function in hæmatemesis are very scanty

The present paper is a study of renal function in twelve cases of gastro intestinal hæmorrhage The severity of some of these cases precluded the adoption of any very disturbing procedure, and principal reliance has been placed on the urea-clearance test of Van Slyke

The history and theoretical basis of this test are dealt with at some length by Peters and Van Slyke (1931) In a review of tests of renal function Cope (1934) points out that the agreement of various clearance tests with one another is in great contrast to the conflicting results of other commonly used procedures, this consistency is a testimony to the general reliability of the clearance method of assessing renal function Stewart (1938) recommends the urea-clearance test as giving very reliable information about total renal function

The results obtained are shown in the table. The urea clearance is expressed as a percentage of normal function. Two values are given in each case, the first being synchronous with the other reported figures, the second a week later. The table also records blood-pressure, hæmoglobin, blood-urea, red cell volume per kilogramme of body-weight, and the amount of urine passed in 24 hours. The red cell volume was calculated from the blood volume, estimated by the dye method of Keith, Rowntree, and Geraghty (1915), as modified by Hooper et al (1920)

UREA-CLEARANCE TEST AND OTHER FINDINGS IN TWELVE CASES OF GASTRO-INTESTINAL HÆMORRHAGE

Case	Blood-pressure	Hb % (Haldane)	Red cell volume (c cm per kg)	Output of urine in 24 hours (c cm)	Blood-urea (mg per 100 c cm)	Clearance (percentage of normal)	Clearance 1 week later (percentage of normal)
1	95/65	26	9 8	2156	43	45	110
2	118/76	48	9 5	616	71	41	65
3	112/80	95	22 8	756	33	122	—
4	116/84	90	30 0	896	43	75	85
5	120/72	44	11 0	1520	42	38	87
6	102/68	62	18 8	616	53	65	71
7	92/64	66	15 0	1176	43	125	95
8	116/70	76	22 8	812	27	85	115
9	76/50	62	22·2	2044	20	94	107
10	108/62	72	31 6	1120	56	47	87
11	112/80	58	18 1	1216	51	59	63
12	116/78	78	11 9	965	87	60	37

In most of the cases there is a moderate or even a pronounced lowering of urea clearance; after a week the clearance has usually risen to within normal limits.

One of the difficulties attending any investigation on hæmatemesis is the assessment of the severity of individual cases The hæmoglobin percentage is of little value in this respect; but Izod Bennett and his co-workers (1938) maintain that the red cell volume per kilogramme body-weight is a satisfactory criterion when transfusion has not been carried out.

A "scatter diagram" has accordingly been constructed, showing the relationship of urea clearance to red cell volume (see figure). Although four of the cases show considerable divergence, the remainder approximate to a linear relationship This indicates some degree of correlation, in the present small series, between the urea clearance and the red cell volume; the divergent values indicate that other factors, besides the red cell volume, influence the clearance—a finding which is hardly surprising when one considers the wide normal variation in urea clearance

No correlation appears to exist between the urea clearance and the blood-pressure, hæmoglobin, or blood-urea.

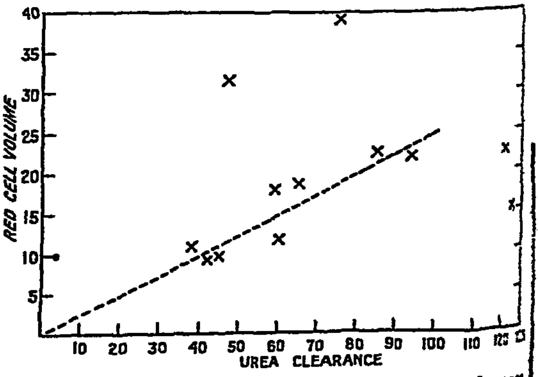
DISCUSSION

In the interpretation of results due regard must be had to the limitations of the clearance test; these are emphasised by the authors themselves (Möller et al. 1928). who state · "It is evident that the urea excretion rate is influenced by other factors in addition to blood-urea content and urine volume, and that an erroneous impression would be created by the clearance formulæ if these were assumed to express with mathematical exactness the complex effects of all factors influencing urea excretion."

Most critics of the urea-clearance test agree with Cope (1934) in emphasising the importance of the conditions originally laid down by Addis (192[illegible], 1928) These are *diuresis* and *elevation of the blood urea*; the theoretical basis for these conditions is the desirability of "loading the kidney" so that all the available nephrons may come into action In the present series of cases blood-urea was usually raised, but diuresis was sometimes lacking.

The excretion of urea under conditions of oliguria is discussed by Smith (1937); he concludes that it is complicated by several factors which are neither analysable nor controllable at the present time, including tubular reabsorption, which increases in importance as the urine volume lessens. Chesley (1938) maintains that with urine volume below 0 35 c cm per minute the urine urea attains a constant concentration, so that the square-root formula of Van Slyke ceases to apply and the test gives unduly low estimates of renal efficiency. Fortunately, in the present series of cases, the output during the actual clearance period was higher than the mean daily output; hence, in spite of the oliguria shown in 24-hour specimens, the clearance periods showed an average minute volume of 1 04 c cm.; it is therefore unlikely that the diminution of clearance observed is due to oliguria.

Another point to be considered is the diminished intake of food protein in hæmatemesis Low protein diet was observed by Cope (1933) to lead to diminution of urea clearance in nephritic patients whose renal function was not grossly impaired; this was confirmed, in normal men, by Goldring et al. (1934). There are, however, two objections to the view that the diminution of clearance observed in hæmatemesis is of this nature Inspection of Goldring's results shows that the clearance was diminished only when the plasma urea was less than 10 mg. per 100 c.cm, this distinguishes his cases very much from those under discussion. Moreover, Pitts (1935), in careful studies on dogs, found that the basal urea clearance could be increased by thyroxine without any increase of protein feeding; this suggests that the important factor is the rate of protein katabolism rather than the intake of protein and there is no evidence of diminished protein katabolism in hæmatemesis



Scatter diagram showing relation between urea clearance (per cent. of normal function) and red cell volume (*c cm. per kg. body-weight*).

After every allowance has been made for low protein intake and absence of diuresis, there is [illegible] evidence of diminished urea clearance in these cases. As pointed out by Van Slyke (1934), diminution of clearance must be due either to decreased renal blood flow or to less complete extraction of urea from the blood. There is at present no conclusive evidence to decide which of these factors is responsible, or whether both play a part. The importance of blood flow is, however, suggested by the degree of correlation between the fall in clearance and the red cell volume, and by the observation of Van Slyke et al. (1934) that the normal variations in urea clearance are more closely related to alterations in the blood flow than to changes in the urea extraction.

SUMMARY

Estimations of the urea clearance in twelve cases of hæmatemesis indicate some impairment of renal function, even when allowance has been made for the effects of low output of urine and diminished intake of protein. The fall in urea clearance appears to have some relation to the red cell volume per kilogramme of body weight. The present evidence *is insufficient to establish definitely the mechanism* of renal impairment.

This work was carried out during the tenure of a Medical Research Council studentship; I take this opportunity of expressing my thanks to the Council.

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EXCRETION OF INJECTED ANEURIN (VITAMIN B_1)

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Westenbrink and Goudsmit (1937a) found that it was possible to make approximate estimations of aneurin by the thiochrome reaction in urine, using a fluorimeter, and showed that in normal individuals ingestion of aneurin by mouth is followed by a rapid excretion (1937b). We have been able to make estimations in urine by a modification of their method in which a fluorimeter is not required, and have followed the excretion after intramuscular injection, thus avoiding the effect of delay of absorption and possible loss in the alimentary tract.

METHOD

The urine was diluted so that the total volume was about 200 ml. per hour. A measured volume of this diluted urine was brought approximately to pH 4 by the addition of hydrochloric acid and shaken with 1 gramme of Clarit acid clay on an automatic shaker for fifteen minutes (Harris and Leong 1936). The clay was filtered off, washed with a little water, alcohol, and ether, and dried overnight in a desiccator over sulphuric acid. Two equal weighed samples of this dried clay, not exceeding 100 mg., were transferred to two 25 ml. glass-stoppered measuring cylinders, A and B. To cylinder A 2 ml. of methyl alcohol was added and nitrogen was bubbled through (Westenbrink and Goudsmit 1937a), then 1 ml. of 30 per cent. NaOH and 1·5 ml. of potassium ferricyanide were added. The end of the bubbling tube was temporarily withdrawn from the fluid while the volume was made up to 7 ml. with distilled water. Then 13 ml. of isobutyl alcohol was added, the bubbling tube was withdrawn from the cylinder, and the cylinder was stoppered and shaken for two minutes. The cylinder was allowed to stand for two layers to separate, and the isobutyl alcohol layer was transferred to a test-tube, shaken with anhydrous sodium sulphate to remove water and then filtered (extract A). Cylinder B was treated in the same way, except that the potassium ferricyanide was omitted (extract B). In a third cylinder C was placed 2 ml. of a solution containing 40 µg. of aneurin, and to this 2 ml. of methyl alcohol, 1 ml. of 30 per cent. NaOH, and 0·5 ml. of potassium ferricyanide were added; nitrogen was bubbled through as before, the volume was made up to 7 ml., and the thiochrome formed was extracted with 13 ml. of isobutyl alcohol (extract C). In two similar test-tubes 5 ml. of extract A (oxidised, containing thiochrome) and B (unoxidised) were compared by eye in the light of a mercury-vapour lamp, passed through a Wratten 18A filter (Karrer and Kubli 1937); B had a white and A a bluish fluorescence. Measured volumes of extract C were added to B and equal volumes of isobutyl alcohol to A, until the blue *fluorescence of B appeared equal to that of A.* With practice 10 per cent. differences could be detected. It was assumed that, if the tubes matched when x ml. had been added, the amount of thiochrome in 5 ml. of A was equal to that in x ml. of C, and that the amount of aneurin adsorbed on the amount of clay used was $\frac{13}{5} \times \frac{x}{13} \times 40$ µg.

The chief difficulty in the estimation of aneurin by the thiochrome method arises from the adsorption of substances other than aneurin from urine. These cause a whitish fluorescence which interferes with the comparison of the blue fluorescence of the extract with that *of a standard solution of thiochrome,* and also inhibit the fluorescence of the thiochrome. Westenbrink and Goudsmit excluded the possibility of incomplete adsorption from urine and demonstrated the inhibition of the fluorescence of the thiochrome. This inhibition can be seen if 5 ml. of an extract B as above, and 5 ml. of isobutyl alcohol are taken in two test tubes and 0·5 ml. of thiochrome solution C added to both. The blue fluorescence of the solution in pure isobutyl alcohol will be much stronger than that in the extract B, particularly if the urine used for preparing B was highly pigmented.

It should be possible to circumvent these two difficulties by the use of the compensating solution B, as suggested by Ritsert (1938). However, even with this device, the values obtained may be too low. If aneurin is estimated as described above in a sample of highly pigmented urine and in a sample of the same urine to which a known amount of aneurin has been added, the difference between the two amounts found may be under 60 per cent. of the amount added. That this is not due to failure of adsorption of aneurin by the clay was shown as follows. A concentrated urine was acidified and adsorbed with clay; weighed amounts of this clay were placed in measuring cylinders, measured volumes of aneurin solution were added, and the aneurin was estimated as described above. When 100 mg of clay was used the recovery of aneurin was under 50 per cent. (table I) When, however, only 25 mg. of clay was used the recovery was more satisfactory. It appears therefore that either the formation of thiochrome is interfered with or some substances which inhibit the fluorescence of thiochrome are formed by oxidation besides those that are extracted in solution B

TABLE I—RECOVERY OF ANEURIN ADDED TO CLAY WHICH HAD BEEN SHAKEN WITH URINE

Amount of clay	Aneurin added	Aneurin recovered	Per cent recovered
100 mg	2 µg	0 9 µg	45
"	6 µg	2 4 µg	40
25 mg.	2 µg	2 0 µg	100
"	6 µg	5 0 µg	83

As shown by Westenbrink and Goudsmit dilution of the urine improves the recovery of aneurin. Thus we found that only 50 per cent of 40 µg of aneurin, added to 50 ml. of concentrated urine, was recovered; but 70 per cent. of 40 µg. *added to 50 ml. of this urine* diluted to 250 ml. with distilled water However, we found that recovery was consistently better from urines which were not highly pigmented as passed, ranging from 80 to 110 per cent Since all the urines in the experiments reported in table II were diluted before adsorption with clay, and since small amounts of the clay could be used when the amount of aneurin present was large, it may be assumed that the estimates of the aneurin in the urines passed after injection of aneurin are, at the worst, not more than 30 per cent too low; although when the urine was highly pigmented and the amount of aneurin present was small, the estimates are probably very inaccurate

TABLE II—EXCRETION OF ANEURIN AFTER INJECTION

Subject	Aneurin injected (mg)	3-hour period	Volume of urine per 3 hours (ml)	Weight of clay used for estimation (mg)	Aneurin excreted per 3 hours (mg)
1		Before inject	510	100	<0 04
	10	1st after "	345	25	2 1
		2nd " "	400	100	0 25
		3rd and 4th "	4330	100	0 07
		5th to 8th	110	100	0 05
1	Control	1st	170	100	0 02
		2nd	210	100	0 04
	3	1st after inject	335	50	0 5
		2nd " "	405	100	0 075
2	Control	1st	87	100	0 025
		2nd	145	100	0 035
	3	1st after inject	74	25	1 25
		2nd " "	100	100	0 095
3	Control	1st	320	100	0 015
		2nd	290	100	0·045
	3	1st after inject	80	25	0 9
		2nd " "	120	100	0 05
4	Control	1st	103*	100	0 005
	3	1st after inject	122*	25	0 60
		2nd " "	100*	100	0 035
5	Control	1st	278	100	0 02
	3	1st after inject	148	25	0 66
		2nd " "	110	100	0 03
6	Control	1st	227	100	0 02
	3	1st after inject	124	25	0 9
		2nd " "	118	100	0 055
7	3	1st " "	420	100	0 75
8	3	1st " "	375	100	0 12
9	3	1st " "	150	100	0 6

* Highly pigmented urine

RESULTS

Table II shows the excretion of aneurin by eight normal males and one normal female (No 7) after intramuscular injection of 3 mg of aneurin, and by one normal male after injection of 10 mg. All the subjects were eating a mixed, varied, and abundant diet, that of No 1 included considerable amounts of brown bread. The urines were collected during three-hour periods after injection. In six cases urine was collected during similar periods on another day when no aneurin was injected.

Aneurin was excreted rapidly in the first three hours after *injection*; in the second three-hour period there was a relatively small increase over the amount passed in control periods This was found by Westenbrink and Goudsmit The amounts excreted per hour during the first three hours after injection of 3 mg. were *in all but one case much higher than* was found by these authors after 1 or 2 mg taken in food No. 2 excreted 41 per cent of the injected dose in three hours; this may be compared with the *excretion of phenolsulphonephthalein, of* which 60 per cent. of 6 mg. injected intramuscularly is usually excreted in two hours. A certain amount of the aneurin must apparently be excreted by the kidneys before there is time for it to be stored in the body. There appears to be no relation between the volume of urine and the amount of aneurin excreted. The amount of aneurin excreted by No was much lower than by the others, but no explanation was *found for this*

SUMMARY

The excretion of aneurin in the urine can be estimated with sufficient accuracy to be of clinical value by the thiochrome method without the use of a fluorimeter

A rapid excretion of aneurin takes place in the first three hours after intramuscular injection

It is suggested that a certain amount of injected aneurin is excreted before there is time for it to be stored in the tissues

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INTRAPERITONEAL RUPTURE OF THE RECTUM

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Lockhart-Mummery (1938) quotes the figures of Lindenbaum (1936), who collected 27 cases of intraperitoneal rupture of the rectum of which all but were fatal. Because of the comparative rarity of this accident and its high mortality the following case is worth recording The modern operative technique was adopted, and the patient survived.

A young farm-labourer, aged 18, was admitted to Addenbrooke's Hospital on August 11, 19 complaining of acute abdominal pain and tenderness and suffering from severe shock. The history elicited from friends was that while he was working in the hayfields he jumped backwards off a wagon and impaled himself upon the upright handle of a pitchfork stuck in the ground, and that about 12 in of the handle, after perforating his trousers, entered his rectum He did not lose consciousness but felt extremely shocked and about a quarter of an hour afterwards developed a most acute abdominal pain His friends removed the pitchfork which had not broken and brought him as quickly as possible to hospital

The boy had excellent physique but was gravely shocked On admission about 1½ hours after the accident his temperature was 100 6° F, rising in an hour to 101 4° F, the pulse-rate 126 rising to 140, and the respirations 30–38 His abdomen was exquisitely tender and very painful, and there was general rigidity of the abdominal muscles Around the anal margin were several hayseeds

A proctoscope was passed, whereupon watery fluid was discharged from the rectum, and, although no rent in the rectal mucosa was found, it was assumed that this fluid originated from the peritoneal cavity, and that the patient was suffering from an acute generalised peritonitis following traumatic intraperitoneal rupture of the rectum Though the outlook seemed hopeless, the patient was given morphia, and, after the shock had somewhat abated, exploratory laparotomy through a right lower paramedian incision, under ether anæsthesia, was performed

Operation —When the peritoneum was opened, a large quantity of foul, slightly yellow, watery fluid gushed out, but no blood or fæces As much as possible of the fluid that remained in the peritoneal cavity was aspirated The greater curvature of the stomach came into view, and lying on the anterior surface just above its mesenteric attachment were two hayseeds About 15 in of the ileum had a peculiar mottled purpuric appearance suggesting minute subperitoneal hæmorrhages, in all likelihood due to friction with the pitchfork handle The patient was then placed in the Trendelenburg position nd the rectovesical pouch explored, when an rregular tear of the peritoneum was seen extending or about an inch up the posterior aspect of the bladder and measuring 2¼ in across its broadest part The bladder was intact, and the perforation in the rectum could not be seen The peritoneal rent was sutured by a purse-string suture (No 2 catgut) A left iliac colostomy was performed and a Paul's tube inserted A "cigarette" drain into the rectovesical pouch was brought out through the lower end of the paramedian incision A flatus tube was inserted into the rectum and maintained by a silkworm gut stitch During the operation 1½ pints of saline was administered intravenously, and drip venoclysis was continued on return to the ward *The patient was placed in Fowler's position*, and morphine sulphate gr ¼ was given four-hourly

Postoperative care —The flatus tube and abdominal drain were removed on the sixth day, the Paul's tube came out on the tenth day The patient was allowed up on August 31 The colostomy acted well from the first day The temperature fell to normal in twenty days by lysis *No gas-gangrene antitoxic serum was given*

On Sept 13 the colostomy was closed under general anæsthesia, the spur being freed and the lumen of the gut restored by simple end-to-end anastomosis The wound was closed with drainage Liquid paraffin was prescribed but no purgatives

After this operation the patient's temperature rose to 99 4° F on the second day and his pulse-rate to 120, when the drain was removed He began to vomit repeatedly small quantities of fluid, and there was some abdominal distension but no pain or tenderness A turpentine enema resulted in the passage of a small quantity of flatus only The question arose whether there was now a mechanical obstruction or some other mischief Mechanical obstruction due to congestion and œdema at the colostomy site after the anastomosis was thought to be most likely, and morphia was prescribed, the patient being carefully observed On the fifth day after closure of the colostomy, when thoughts of reopening the abdomen were being entertained, the vomiting ceased and the patient had a normal bowel evacuation, and four days later defæcation was regularly established On Oct 2 the patient was discharged in his normal state of health

This case supports the view that for this type of injury immediate exploratory laparotomy with adequate drainage after suture of the peritoneum is the best course

My thanks for permission to publish this case are due to Mr R Weeden Butler, surgeon to Addenbrooke's Hospital, Cambridge

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MEDICAL SOCIETIES

SOCIETY OF MEDICAL OFFICERS OF HEALTH

At a meeting of the fever hospital medical service group of this society, held in London on Jan 27, with Dr J A H Brincker, the president, in the chair, a discussion on the

Modern Treatment of Scarlet Fever

was opened by Dr J V Armstrong (L C C) He drew attention to the fact that *scarlet fever occupied* only a comparatively small place in the large field of epidemic streptococcal diseases of the upper respiratory tract, and hoped that the scope of notification might be extended so that serious cases even if no rash was present, might be notified and sent into fever hospitals for treatment. In a brief review of the history of the disease and its fluctuations in severity, he pointed out that, although scarlet fever had been *mild in the British Isles* for some years, a severe type had been prevailing in south-eastern Europe

As regards the use of scarlet fever antitoxin, Dr Armstrong thought that most observers were now agreed that an early and sufficient dose aborted the initial toxæmia, and by so doing put some check on subsequent invasive complications, such as otitis media and suppurative adenitis There was, however, a dearth of controlled experiments to prove the value of serum in averting complications, and such evidence as existed was somewhat conflicting The route and dosage of serum was important in these respects, as was shown by the work of Banks on the intravenous and intraperitoneal routes and the good results claimed by Ronaldson by the routine use of the large dose (40 c cm intramuscularly) The recent production of the digested concentrated antitoxin was likely to solve both the difficulty of giving adequate dosage and of serum reactions whatever the dose or route Convalescent human serum was also used abroad and was probably bactericidal as well as antitoxic in its action In Rumania it had had a considerable success

The logical outcome of the noteworthy work of Brown and Allison on the mutual reinfection of patients in open wards was said Dr Armstrong, the nursing of all scarlet fever cases either in separate ward units, on barrier, or in type-specific wards, These were, perhaps, unattainable ideals, but sharp new cases, septic cases, and cases with discharges could well be isolated Home nursing had been suggested as an alternative by some workers including Duncan Forbes, who had carried it out at Brighton since 1931 and claimed that it saved much expense and left isolation hospital beds free for other types of cases For the system to be successful, however, the home conditions must be good and experienced medical and nursing attention must be available. When treated in hospital, patients were now discharged earlier than formerly and the modern trend was to discharge scarlet-fever patients in the third or fourth week when the infecting power of the initial streptococcal strain was thought to be at its lowest

Recent work had also shown that doubtful cases of scarlet fever could be discharged within ten days if cultures from the nose and throat showed no streptococci The importance of open-air treatment in the prevention of complications had been much stressed lately In view of the fact that active immunisation, although abolishing the rash, did not completely prevent the local proliferation of the streptococcus, Dr. Armstrong doubted whether it was worth while in communities such as fever nurses, especially in view of the many other inoculations to which nurses were already subjected.

Dr. J S Anderson (L C C) dealt with the employment of sulphonamide compounds in scarlet fever He pointed out that while it was agreed that these drugs had little or no effect upon the initial toxæmia and its febrile accompaniment, there was no consensus of opinion as to their effect upon the incidence of complications The majority of investigators were of the opinion that a combination of sulphonamide and antitoxin would probably give better results in preventing complications, and on theoretical grounds this should be the case The hæmolytic streptococcus associated with scarlet fever produced toxin and also, by reason of its pyogenicity and invasiveness, sepsis Hence the disease was a combination of toxæmia and sepsis For the former, a therapeutic agent of proved reliability was already available in antitoxin. For the latter, sulphonamide appeared to be the answer. An investigation was carried out at the Grove L C.C. Hospital in 1936 and 1937, the drugs employed being Prontosil soluble injected intramuscularly on admission and Prontosil rubrum administered orally for the ensuing week. The 417 cases were allocated to four groups The first group received routine treatment, the second prontosil soluble and prontosil rubrum, the third antitoxin, and the fourth prontosil soluble and prontosil rubrum in combination with antitoxin The results showed that, by itself, prontosil had no significant effect on the duration of the initial toxæmia As regards complications, by far the worst results were obtained in the routine treatment group and easily the best in the prontosil and antitoxin group. There was a tendency for hæmolytic streptococci to disappear more quickly from the throats of prontosil-treated patients In an investigation now proceeding M. & B 693 was being given throughout the course of the fever and it was already evident that this form of treatment produced toxic rashes in a considerable proportion of patients

Dr. H S Banks said he was still in favour of serum treatment for all definite cases of scarlet fever admitted to hospital It was mistaken economy to employ serum in only a small proportion of the cases admitted to open wards, for various streptococcal infections were apt to spread in such wards On the other hand, when 90 per cent. or more of the patients in a ward had antitoxin on admission they were largely protected for at least three weeks and complications were greatly reduced The three weeks' period of residence was important, though patients treated with serum did not need to be kept in bed for three weeks They should be on ordinary diet in two or three days, up in a week, and could usually be discharged from hospital after about two weeks for adults and three weeks for children. With the inclusion of an aftercare scheme of urine testing, Dr. Banks had employed this policy continuously for twelve years, and the results proved it to be in the best interests of the patient With the new concentrated serum of Lederle there were rarely any reactions with intravenous serum. He had recently treated about 200 cases with sulphanilamide in a dose of 2–6 grammes daily, according to age, for five days from admission The results were distinctly inferior to those in a parallel series of serum-treated cases. The initial toxæmia was uninfluenced by the drug and heavy desquamation was common Nephritis and albuminuria were definitely increased and probably otitis media as well

Mr. T B Layton thought that Dr. Anderson's treatment would lead to the prevention of inflammation of the middle-ear cleft by causing an early subsidence of the swelling of the mucous membrane He was, in theory, more in favour of the simple incision of a postaural swelling than was Dr. Armstrong, but did not think that he would be much at variance with him in any given case of this or of mastoiditis without swelling. He thought the clearing up of those cases of otitis that did not recover with the disease was the most important of all otological problems. He was convinced that the Herd treatment in ear wards was the right one They had learnt that afternoon that in such wards there was no fear of secondary epidemics when the patients were in the third week of the disease and after. This fitted in with his own clinical experience.

Dr. Sage Sutherland (Manchester) advocated the administration of antiscarlatinal serum in every case and referred to its prophylactic value in the prevention of otitis media, which was the most troublesome complication of scarlet fever, resulting in prolonged hospital treatment At Monsall Hospital during the years 1934–36 an average of 5 7 per cent of the 2000 scarlet-fever cases received antitoxin and the incidence of otitis media, excluding cases of otorrhœa on admission, averaged 6 8 per cent During the last four months, of 590 consecutive cases, 75 received 2 2 c cm and 515 received 1 4 c cm of a highly concentrated serum intramuscularly, and the incidence of otitis media has fallen to 3 6 per cent. Serum rashes occurred in 5 5 per cent. of cases

Dr. R W Tannahill (Waltham Abbey) described his experience with Proseptasine. Compared with serum the results were disappointing. All cases admitted over a period of six months had received 2–3 g. of proseptasine by mouth daily for a week. Compared with cases treated with serum the temperature did not fall so quickly and the rash remained longer, desquamation was much more common and there were more complications He had now given up proseptasine and returned to serum treatment, and he had found that 10 c cm given intramuscularly sufficed for the average case

Dr. J O Murray (Rochester) said that the increased liability to complications produced by segregating patients in an open ward made the admission of children suffering from scarlet fever to hospital unjustifiable unless it was possible to arrange for isolation in single cells and barriers, c classification and isolation in two or three bed wards The majority of cases were mild and could be dealt with at home, particularly if there were provision for free domiciliary nursing by the local authority Severe toxic and septic cases should, of course, be admitted to hospital but these formed a very small proportion of the total The drawbacks to isolation at home were not insurmountable, and were negligible when compared with the risk of cross infection in open wards, a risk which always became more grave in epidemic periods

Dr M Mitman (L C C) said that in the investigation at the Eastern Hospital in 1930, reported by Hogarth, benzyl sulphanilamide and antitoxin were given to a group of cases which were controlled by two other groups, one receiving antitoxin and the other the routine treatment Although the results in the combined group were slightly better than the other two, the difference was not statistically significant His present views of the treatment of scarlet fever were for mild cases treated at home, no antitoxin or sulphanilamide , for mild cases admitted to an open ward, antitoxin intramuscularly , for all moderate cases, antitoxin intramuscularly , for severe cases, antitoxin intravenously , for complications, sulphanilamide

Dr A A Cunningham (L C C) said that in the United States most patients were treated at home Those admitted to hospital were nursed for the most part in separate rooms or cubicles where the rigid Willard Parker nursing technique was still observed Specific serum treatment was reserved for the severe cases, and two methods were in use First, the injection of 20–100 c cm of convalescent scarlet fever serum intramuscularly or intravenously , secondly the injection of 6000–12,000 units of Lederle's globulin modified antitoxin intramuscularly or intravenously Complications were few Otitis media, when it occurred, was reported to have responded well to Prontylin therapy by mouth In America, both the intradermal and the conjunctival tests for serum sensitivity were applied A positive conjunctival test, as evidenced by the development of irritation, lacrimation and redness coming on 15–20 minutes after the instillation of one drop of horse serum diluted 1/10 into the lower conjunctival sac, was held to be an absolute contra indication to intravenous serum therapy

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ROYAL SOCIETY OF MEDICINE

SECTIONS OF SURGERY, MEDICINE AND ANÆSTHETICS

At a meeting of the section of surgery held on Feb 1 jointly with the sections of medicine and anæsthetics, with Mr C H S Frankau, the president, in the chair, a special discussion on

Surgery in Diabetic Patients

was opened by Mr John B Hunter. He stated that the treatment of diabetes now lay in the complete control of the condition, and therefore many more cases were suitable for surgery than in the days before Banting s discovery of insulin The patients requiring operation fell into two groups—first diabetics needing surgical treatment for some unrelated disease, and secondly those needing it for some complication of the diabetic state The second class could be further subdivided into cases in which the function of endocrine glands other than the pancreas was disturbed, and cases where local sepsis was the predominant feature

The risk of operation was to be assessed according to the patient's general condition and reaction to treatment of the diabetes The surgeon must be guided by the physician, and continual coöperation was extremely necessary throughout If properly prepared the diabetic was no greater a risk than the non diabetic', he might in fact be a better risk, for he would have had an adequate period of rest and preoperative treatment, which was not always given to the ordinary patient Similar care was essential for the two days immediately following the operation Anæsthesia and trauma each played a large part in disturbing the metabolism Severe trauma produced in every patient a transient rise of the blood sugar, but in the diabetic this had great significance If severe and prolonged vomiting developed after the operation, great care was necessary Aggravation of the diabetes by faulty function of the pituitary gland was rare, but thyroid disease was not uncommon in diabetics (4 to 8 per cent) Thyrotoxicosis might considerably augment the diabetic condition , the metabolic rate being increased, the patient tended to waste more rapidly because of the pancreatic defect Alleviation of the thyroid condition brought much improvement in the general condition, though it did not cure the diabetes The administration of Lugol's iodine immediately after operation seemed very useful.

Diabetics were extremely liable to infective lesions of the feet caused by cracks and calluses and by too close paring of corns and nails The commonest form of lesion was a small sinus with little or no reaction round it, leading down to the cavity of one of the joints, which was completely destroyed with sequestra in the cartilage of the base These lesions were no doubt due to the poverty of the blood supply A general examination of the arterial state should be made and the pulsation of the arteries tested Proximal examination would reveal popliteal pulsation, and examination of the radial and brachial arteries would give a guide to the degree of vascular disease Cellulitis might involve the whole foot, and œdema might spread above the ankle A striking fact about local septic lesions in the diabetic was their comparative painlessness Small sequestra could be removed without an anæsthetic, but the surgeon should be very cautious in applying strong antiseptics or radiant heat

The treatment consisted first in the control of the diabetes, but time should not be wasted on that The aftercare of the surgical wound was important It should be packed with sterilised boracic powder, renewed every day After a few days a small quantity of insulin should be introduced into the depths once or twice a day Whether pulsation was present at the ankle or not, the patient should be treated by intermittent venous occlusion, the most convenient apparatus being that of Dr Wilson [1] Sequestra could sometimes be removed during the daily dressings. Most of these patients were in the arteriosclerotic age and the vascular disease was undoubtedly aggravated by the diabetes The sepsis might pass into gangrene, even during the first few days of treatment, as a result of increased tension the surgical incision, or the application of heat For a severe degree of cellulitis, amputation at a high level might be called for Mild lesions should be treated with dry dressings and carefully washed, and surgery deferred until improvement (if any) had reached its maximum In suitable cases toes should be amputated for osteomyelitis and gangrene For amputation other than above the knee, it was inadvisable to use a tourniquet, as the smaller vessels might be thrombosed during stasis In old patients the diabetes was usually of recent onset, but the arterial condition was bad and delay in amputation might be fatal.

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[1] See Wilson C. and Ogston A G., *Lancet* 1938, 1, 658

Carbuncles might reach a huge size and were rapidly detrimental. In the early stages magnesium-sulphate paste should be applied A large carbuncle, or one which spread in spite of treatment, should be radically excised. In cases of surgical emergency, time should not be wasted in treatment of the diabetes. The diabetic was liable to abdominal cramps, which might simulate an acute abdomen, and a diabetic with acute appendicitis presented none of the ordinary signs Acute peritonitis might simulate coma The surgical mortality was about 12 per cent, mostly from septicæmia; the figure might therefore be reduced under the influence of new treatments.

Dr. H. P. HIMSWORTH (section of medicine) said that surgery depended on the opinion of the physician whether or not the patient could be sent up to the theatre with his diabetes balanced If not, the surgical technique might have to be modified. An uncontrolled diabetic had thirst and polyuria, and showed the chemical signs of ketonuria, hyperglycæmia and glycosuria Knowledge of the blood-sugar level was of little value, for it was not correlated with the clinical state All the necessary information could be obtained from a series of urine specimens The most important chemical sign was ketonuria, for in marked degree it showed that the diabetes was grossly out of control and that the patient was not fit for operation. The chief problem was to ensure that the patient went to the theatre without ketonuria, and the physician need know nothing more except that the patient also had a minimum amount of glycosuria This criterion could, however, be counterfeited by starvation. To abolish ketonuria, the physician had to increase carbohydrate utilisation by giving adequate supplies of carbohydrate and insulin. When time was available, the preparation of the uncontrolled diabetic differed from the routine balancing only in one respect: he must receive an adequate amount of food from the onset—at least 1800 calories and 180–200 g of carbohydrate The dose of insulin should be raised until ketonuria was completely abolished and glycosuria was reduced to the minimum Protamine insulin should not be used unless a long time were available, for lengthy observation was sometimes necessary for the correct dose to be determined. Three doses of ordinary insulin a day would control the sugar more quickly.

For minor operations under local anæsthesia, Evipan, or Avertin, no special measures need be undertaken. A major operation under a volatile anæsthetic required special preparation The meal and insulin next before the operation should be omitted, but two or three hours before anæsthesia the patient should receive 50 g. of sugar in lemonade, and as he was put on the trolley he should be given 25 units of protamine-insulin subcutaneously. If he was on protamine-zinc insulin, and the operation was fixed for the morning, the same preparation should be given without breakfast or protamine-zinc insulin. If the operation were to be in the afternoon, he should receive the usual dose of protamine-zinc insulin and lunch should be omitted, but three hours before the operation 30 g of sugar should be given, and 10 units of insulin should be injected as the patient went into the theatre Ether led to postanæsthetic vomiting, which, by interfering with the intake of food, might complicate treatment. Chloroform was condemned by trustworthy authorities. Postoperative dehydration must be avoided and diabetic ketosis averted, the former by giving glucose saline and water, the latter by giving insulin. Rules should be suspended for the first two or three days A patient who could take food by the mouth was given sweet lemonade at frequent intervals. Every specimen of urine was tested; if there were no ketones, by Benedict's solution; if the precipitate were red the patient should have 20 units of insulin; if yellow, 50; if green, 10; and if there were no precipitate he should have no insulin. He should eat what he liked.

If ketonuria were present, more carbohydrate should be given, and 25 units of insulin should be administered for each 50 g. of sugar. If the patient could not take sugar by mouth, during the first twelve hours he should have insulin according to the colour schedule; vomiting should be treated in the usual way Ketosis should be combated by intravenous glucose saline, 1 pint an hour for two or three hours, and for every 50 g of glucose 30–50 units of insulin should be given according to the severity of the ketosis. After twelve hours, if glucose still could not be given by mouth, more glucose saline should be injected intravenously with 25 units of insulin. The state of ketonuria determined whether an emergency operation could be undertaken at once. It was usually possible to wait six hours If much ketosis were still present, a 10 per cent glucose solution should be infused during the operation and afterwards until the ketones had disappeared If during preparation severe glycosuria developed and ketonuria appeared, sepsis was probably present and operation must not be delayed. Drastic treatment would be necessary. Diabetic cramp could closely mimic a perforated gastric ulcer. The white cell count did not help, because there was leucocytosis in all cases of marked diabetic ketosis The distinction had no practical importance, as in neither case was the patient fit for operation until the ketosis was reduced Prophylaxis of perforating ulcer was treatment of the callosities, and a chiropodist attached to the clinic would practically abolish it Gangrene was nearly always precipitated by trauma or mild sepsis, and clear instruction to patients about the care of the feet would prevent much of it. In some patients its onset would be announced by intermittent claudication, deep coloration of the hanging foot, and the presence of dry, scaly skin on a cold foot. In senile gangrene, amputation was often preferable to long immobilisation.

Dr. JOHN T. HUNTER (section of anæsthetics) said that the anæsthetic agent must have the minimum effect on the hydrogen-ion concentration of the blood and on the blood-sugar. A patient who was sugar- and acetone-free would, if certain adjustments were made in the carbohydrate intake and the insulin dosage, take the anæsthetic at least as well as the ordinary patient. There was no contra-indication to small doses of morphia and atropine or morphia and scopolamine. These might be combined with one of the barbitone drugs; avertin had the advantage that the patient could be kept unconscious with nitrous oxide and oxygen alone. The intravenous barbiturates were perhaps the most useful: the best known were sodium Evipan and sodium Pentothal Local or regional anæsthesia was the method of choice except in the presence of sepsis. Gas and oxygen, or a small dose of sodium pentothal, might also be given. Regional nerve block caused a slight toxæmia and hence a rise of blood-sugar, and was therefore not desirable in septic cases. Diabetes was not a contra-indication for subarachnoid block. Muscular relaxation was better, and it obviated the infiltration of the abdominal wall with large quantities of fluid. It was contraindicated in elderly and debilitated persons whose blood pressure was unduly low Cyclopropane or divinyl ether might be used with advantage, especially in operations on the upper abdomen Spinal procaine was especially useful in the shorter surgical procedures The effect of Percaine was longer

It was important to avoid a great fall in the blood-pressure by premedication Morphia and hyoscine, combined with Coramine, should be given at least three hours before operation, and avertin should be given twenty minutes before the spinal block. Its careful administration in quarter grain to half grain doses would check the fall of the blood-pressure The use of chloroform must be avoided absolutely in diabetes, for it caused tissue cell destruction which impaired the glycogenic function more than any other agent The safety and value of ether were doubtful. It was valuable if used in very small quantities as an adjuvant to gas and oxygen when the patient was well prepared Gas and oxygen was undoubtedly the best and safest inhalant anæsthetic There might be a slight rise in blood sugar, but acidosis was negligible. It could be supplemented by pentothal, divinyl ether or cyclopropane, sufficient oxygen should be given to keep the colour of the patient good. It was the safest anæsthetic in the midwifery of diabetics

Cyclopropane had superseded acetylene or ethylene in this country It caused a slight and transient rise in blood sugar Excretion of urine was slowed or even suppressed, but rapidly returned to normal An alarming fall in the blood pressure immediately after administration, and retching and vomiting in the second twenty four hours after the operation, might be due to too sudden a removal of the mask and therefore too rapid a drop in the oxygen concentration of the mixture Burford had suggested the admixture of an inert gas to replace the excess oxygen For minor surgical procedures in diabetics, cyclopropane still could not take the place of gas and oxygen Divinyl ether was useful in small quantities for minor operations in children—e g, the removal of lymphoid tissue from the throat—and as an adjuvant to other agents Its effect on the blood chemistry was similar to that of cyclopropane, but it was said to be toxic to the liver in large doses Of the intravenous anæsthetics, sodium pentothal was perhaps the best, sodium thio-ethanyl was slightly more depressing to the respiratory centre They were excellent in diabetic cases, as their effect on the blood sugar and the carbon dioxide-combining power was very slight Dr Hunter gave a list of surgical conditions with the anæsthetics that were most suitable for each

DISCUSSION

Dr W G Oakley declared that in his experience the diabetes of elderly patients who came to him for surgical treatment had usually lasted for many years It might, however, only have been diagnosed a short time before, for the patient did not suffer from the classical symptoms Such patients came to hospital only when the arterial disease had produced gangrene or some other complication Earlier diagnosis might do much to render surgery unnecessary in such cases Wilson s apparatus needed extreme care, for it sometimes caused marked deterioration It was the custom at King s College Hospital to give the patient, five hours before the operation as much of the carbohydrate portion of his diet as possible, together with a full dose of soluble insulin, in order that the food might have time to leave the stomach before anæsthesia From about two hours before the operation he was given 30 g of glucose and 10–20 units of insulin If he vomited he would still have plenty of carbohydrate in his system and the insulin would not cause hyperglycæmia

Mr E C B Butler gave figures of two series of 100 patients each to show the effects of insulin treatment and how it had delayed the onset of gangrene until later life The death rate was far higher than it should be He quoted evidence that gangrene was sometimes due to an anaerobic *streptococcus*, and asked advice for the treatment of diabetic coma following on primary arterial hæmorrhage

Mr C E Shattock pleaded for periarterial sympathectomy in elderly patients with diabetes and a local septic condition of the foot, in order to increase the blood-supply

Dr C G Barnes said that in a hospital with a biochemical laboratory the alkali reserve should be estimated before operation The blood sugar might be normal and ketosis absent, but the carbon dioxide combining power might be very low Such cases were apt to develop a severe ketosis after operation Pregnant diabetics relatively often had a low alkali reserve and needed prolonged treatment before they could undergo a cæsarean section or induction of labour satisfactorily In elderly fat diabetics even a large abscess might be concealed, especially in the fascial planes in the region of the hamstrings Such patients were extremely liable to septicæmia

Dr C W Maclay spoke of peripheral nerve degeneration as a common complication of diabetes It might reasonably be ascribed, he suggested, to disturbance of metabolism resulting from defective nutrition of the nerves, and might account for the relative degree of anæsthesia of the diabetic He asked whether regional nerve block or local infiltration would aggravate it, and, if so, which one of these would be more detrimental Cod liver oil was sometimes used advantageously in the treatment of ulcers

Dr H Letheby Tidy remarked with pleasure that no physician or surgeon had quoted a single foreign observer but all had spoken about their own experiences He confirmed that the elderly surgical diabetic was usually a case of long standing He doubted whether the results would be improved by early treatment of these cases. The arterial degeneration advanced, rather than the diabetes—which was generally mild. King Edward VII had had 4 per cent of sugar for over twenty years and had died from an entirely different condition at seventy Coronary thrombosis was a common cause of death The absence of pain was generally ascribed to neuritis, but the general arterial degeneration had to be taken into account The suggestion had been made that one of the factors was a vitamin B deficiency, the vitamin being lost to the body in the same way as the carbohydrate was lost.

Mr C Granville Hey said that many resident medical officers testing the urine of a patient who had a carbuncle found a high content of sugar and jumped to the conclusion that the patient was a diabetic A very elderly patient with a carbuncle had definite glycosuria, and insulin tended to hinder recovery The test was sensitivity, which would mark the non diabetic

The President recalled an observation of Sir Cuthbert Wallace that some cases of glycosuria were due to gangrene or sepsis and some cases of gangrene or sepsis were due to diabetes, and that they were entirely different conditions In operating on a case of diabetic gangrene it was advisable to increase the alkali reserve and infuse sodium bicarbonate.

In reply, Dr **HIMSWORTH** said that a correspondent in THE LANCET in 1895 had described in detail a condition he had called "sapræmic glycosuria," or high blood-sugar due to sepsis Such patients ought to be treated as diabetics until they were cured of the cause of the sepsis, for they were, in his view, temporary diabetics.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY

A MEETING of this society was held in Manchester on Jan 13 with Prof. **FARQUHAR MURRAY** (Newcastle-on-Tyne), the president, in the chair.

Radium Treatment of Uterine Hæmorrhage

Dr. **WILLIAM HUNTER** (Newcastle) read a paper on the place of radium in the treatment of uterine hæmorrhage due to non-malignant states Radium, he said, was invaluable in such cases, in the absence of demonstrable disease, when simple measures, including curettage, had failed to give relief His views were based upon 150 cases of benign hæmorrhage treated with radium in the Newcastle Infirmary and followed for two years. Using a 50 mg pencil applicator with 3 mm silver filtration, a single dose of 1200 mg-hours was given as routine and this gave satisfactory results in 95 per cent. of cases There were unfavourable sequelæ in 34 per cent, but menopausal symptoms were no more severe than after a natural climacteric The immediate mortality was nil, the only death being from pneumonia seven months after treatment

In the discussion that followed, almost all the speakers agreed about the value of this form of treatment The questions chiefly considered were the dosage and the advisability of using radium to check bleeding in younger women In Dr. Hunter's view the dose given should be the smallest that would control the hæmorrhage; larger doses might increase the number of complications —The **PRESIDENT** laid stress on the value of small doses in occasional cases of menorrhagia in young women—a view that did not gain support from other speakers It was generally held that radium should not be used where there was much pain or where there were fibroids of more than seedling size

A Split Pelvis in Labour

Dr **STANLEY WRIGHT** described a case of labour associated with ectopia vesicæ and split pelvis The patient was a primigravida 25 years old, of average height and build, but with the secondary sexual characteristics poorly developed She had well-marked ectopia vesicæ The urethral orifice was large and it was through this orifice that coitus had been taking place, the hymen being intact. Insemination had resulted from coitus interruptus. The skiagram showed about 2 in of separation of the pubic bones; the sacrum was thrust forwards by the iliac bones, there being only about 1½ in. between the posterior superior iliac spines It was said that in extreme cases these points might become so approximated that the bones seemed to enclose a cavity behind rather than in front—the so-called inverted pelvis The patient was admitted at the 32nd week, and unexpectedly went into labour a fortnight later, and was completely delivered an hour from the onset of labour. The condition, said Dr. Wright, was of interest since it demonstrated that the pressure of the femora on the pelvis is not inwards —for this would approximate the two halves of the pelvis—but upwards

Prof. **DANIEL DOUGAL** (Manchester) described a case of chronic hypertrophic vulvitis following childbirth, for which no cause other than the trauma of labour could be discovered —Mr. **GLYN DAVIES** (Sheffield) reported a case of regional ileitis complicating dysmenorrhœa in which he resected a segment of the terminal ileum measuring 8 in

DEVON AND EXETER MEDICO-CHIRURGICAL SOCIETY

A MEETING of this society was held on Jan. with Dr. R. R. **TRAILL**, the president, in the ch

Neuromyelitis Optica

Dr. C. J **FULLER** and Mr. **RANSOM PICKA** jointly described two cases of Devic's disease, o of which was shown.

The patient, a girl of 11, was admitted to hospi on Dec. 19, 1938, having been perfectly well un three days before, when she complained that s could not see. The deterioration in vision h become progressively worse and in 24 hours she w completely blind. There was also some slight front headache. On admission it was found that bo optic fundi were normal. The pupils reacted slight to light and more particularly to light thrown on t left side of each retina. There was some weakne of the right internal rectus, but the other crani nerves were normal. There was no loss of power i the upper extremities, but both biceps-jerks we absent. The left triceps-jerk was present but th right was absent. There was no ataxy, the knee jerks were present, but the ankle-jerks were abs and the plantar reflexes flexor. Sensation was norm and the abdominal reflexes were present. There wa no Kernig's sign or head-retraction. The cerebro spinal fluid showed 12 lymphocytes per c mm. and the protein was 60 mg. per 100 c cm. A week later some muscular weakness was noted on the left side of the face, in the left arm, and in the left leg, and there was an extensor plantar response on the left side. After another three weeks the left hemiparesis had improved and the patient, for the first time since the onset of the illness, was able to recognise the colour of a cup held in the hand She could also recognise fingers held 18 in. in front of her eyes The condition somewhat deteriorated during the next week; the hemiparesis increased and the patient was once more unable to see a light held in front of her eyes, but during the following fortnight there was steady improvement At the time of report the child was able to recognise faces and the hemiparesis had almost disappeared.

Dr Fuller contrasted the apparently favourable prognosis in this case with that in another patient who was too ill to be shown This was a woman aged 50, admitted to hospital on Dec 24, 193 Three weeks previously she had found herself unable to see when looking to the right Two days later she developed acute retention of urine and it was found that she had a paraplegia extending up to the level of the third thoracic segment, with complete sensory loss below that level There was also a right homonymous hemianopia but the discs were normal The cerebrospinal fluid contained 32 lymphocytes per c mm and protein 95 mg per 100 c cm. The Wassermann reaction was negative

REVIEWS AND NOTICES OF BOOKS

Secondary Gastro-intestinal Disorders, Reciprocal Relationships

By JULIUS FRIEDENWALD, M D, professor emeritus of gastro enterology, University of Maryland school of medicine, THEODORA H MORRISON, M D, clinical professor of gastro-enterology in the school; and SAMUEL MORRISON, M D, assistant professor of gastro-enterology in the school London Baillière, Tindall and Cox. 1938 Pp 251 13s 6d

IT was a happy idea to collect and survey the gastro intestinal symptoms which arise in diseases whose centre and seat lie outside the gastro intestinal tract, and to discuss along with them the disturbances of non alimentary functions which are produced by alimentary tract disease These "reciprocal relationships" link the gastro intestinal tract with heart disease, pulmonary tuberculosis, liver and gall bladder, the urinary tract the female pelvic organs, the endocrine glands, the anæmias, the nervous system and the neuroses the skin, and the eye Those are the main chapter headings of this book The matter of it is derived from the authors' own experience, from which case records are quoted by way of illustration, and from an extensive study of the literature It is full of interesting and valuable observations, but the student and the general practitioner, for whom it purports to be written, will find difficulty in seeing the wood for the trees A closer and more critical inquiry into the physiological basis of these reciprocal relationships would have given the book greater cohesion and greater value, though the answer to such an inquiry would often be "we do not yet know" At times the authors are content with a superficial pseudo explanation "The intimate relationship between disturbances of the genito urinary organs and those of the gastro intestinal tract are accounted for," they say, "partly by the anatomic relations between these systems and their nerve and blood supply, and in a large degree by developing toxemias"; but they do not define the reflexes involved or identify the toxins

The book is to be recommended, however, as a painstaking collection of clinical observations, any group of which, as well as being of interest to the clinician, might well be the stimulus and starting-point of a profitable physiological investigation

British Encyclopædia of Medical Practice

Vol X By Various Authors Under the general editorship of Sir HUMPHRY ROLLESTON London Butterworth and Co 1938 Pp 731 35s

THIS volume opens with a consideration of the medical aspects of poisons legislation by Hugh N Linstead and ends with an article on rosacea by A C Roxburgh Among the eleven articles on psychological medicine must be mentioned Emanuel Miller's on the psychiatry of children, in which the scope and potentialities of this vast subject are outlined as fully as is possible in ten pages Miller points out that whereas the general principles of psychotherapy hold good for children as for adults, certain modifications of technique are necessary in those cases in which the mental mechanisms involved render suggestion and persuasion relatively useless He attaches great importance to the analysis of play and adds that it is often necessary to subject the parents of psychotic children to careful psychiatric scrutiny if success in treatment is to be achieved Other important contributions in this sphere are Edward Glover's on psycho analysis and R D Gillespie's on psychoneurosis, to which P Manson-Bahr has added a section on neurasthenia in the tropics In the neurological sphere, F M R Walshe's article on reflexes in diagnosis, which explains the significance of reflex abnormalities, should be useful to the general practitioner

General medicine is typically represented by J M O'Donovan's article which tackles the constantly recurring diagnostic problem of obscure pyrexia The contention that there may be many persons with "habitual hyperthermia" is comforting but has its dangers in that it may lull the clinician into a false sense of security S P Bedson and Donald Hunter combine to produce a full account of psittacosis in which disease, though the treatment is still prophylactic and symptomatic, the prognosis is by no means hopeless The special departments of surgery are represented by articles on retinal disease by R C Davenport, and on rhinoscleroma by Lionel Colledge Kenneth Walker deals with surgical methods of rejuvenation, he discusses the rationale and results of the Steinach and Voronoff operations and ends with a note on the present and future possibilities of the endocrine treatment of premature senility Psoriasis, the successful treatment of which remains one of the perpetual enigmas of general practice, is optimistically discussed by John T Ingram, who considers that prognosis depends to some extent on the prompt and efficient treatment of each attack, particularly the first, and on aftercare F J Browne contributes a long article on normal and pathological pregnancy The article on the puerperium by A Leyland Robinson and R M Fry contains many counsels of perfection not always attainable in domiciliary midwifery

The high quality of the plates and illustrations in this series is fully maintained in the present volume

Introduction to Industrial Mycology

By GEORGE SMITH, M Sc, A I C, research demonstrator, department of biochemistry, London School of Hygiene and Tropical Medicine London Edward Arnold and Co 1938 Pp 302 16s

THE subject matter of this book forms part of a course of lectures given at the London School of Hygiene to students reading for the postgraduate diploma in bacteriology It is not primarily concerned with micro organisms found in disease in man, but it nevertheless contains much of value to the medical reader and especially the bacteriologist Most of us are quite unaware of how extensively the scientific use of moulds has come to replace the old hand methods in industry Thus, Prof Raistrick points out in his foreword that citric acid, until this century obtained exclusively from the juice of citrus fruits, is now being made on a wholesale scale by growing *Aspergillus niger* on sugar solutions and that the exploitation of bacteriology in such ways is leading not only to a new technical branch of the subject but is also developing a fresh aspect of biochemistry in studying the changes almost bewildering in their diversity, which are brought about by the growth of moulds

The author uses the term mycology in its modern sense as being concerned only with the eumycetes or true fungi, and the medical reader will be interested in his clear and systematic way of dealing with terminology and classification In describing the moulds medical textbooks are still apt to be confusing in their use of old nomenclatures and somewhat primitive diagrams and pictures. This book follows the international rules of botanical nomenclature and even gives information to the bewildered student on the pronunciation of the different botanical names created by terminologists skilled in the use of Latin genitives After describing seriatim the various moulds used in industry, with exceptionally good illustrations, Mr. George Smith gives an account of laboratory equipment and technique including methods of cultivating moulds and controlling their growth. This is followed by a section on the use of fungi in such industrial processes as alcoholic fermentation, the ripening of cheese, the production of glycerol, the syntheses of fats and proteins and the manufacture of Marmite, ergosterol and other vitamin products. Finally the author includes a bibliography with a short description of the salient contents of the books listed

All bacteriologists will find this a valuable reference work not only for the information it contains but for the way in which it clears the ground of obsolete classifications and of the vague and inadequate descriptions of moulds which still find a place elsewhere We hope that it will lead to a similar clarification of medical mycology.

Synopsis of Physiology

(3rd ed.) By A. RENDLE SHORT, B.Sc, M D., F.R.C.S., professor of surgery, University of Bristol; and C. L. G. PRATT, M.A., M.Sc, M D., demonstrator in physiology, University of Oxford. Bristol: John Wright and Sons. 1938. Pp. 325. 10*s* 6*d*.

THE new edition of this little book contains many small additions which bring it up to date. Such synopses have their uses for the rapid revision of a subject and for the provision of subject-headings, and this book fulfils these needs very completely. As an aid to "the practitioners who wish to keep abreast of modern physiology," however, this type of book is less suited, for it has to presume the reader's knowledge of the facts of which it provides a summary.

Yearbook of the Eye, Ear, Nose, and Throat

Edited by E. V. L. BROWN, M D., professor of ophthalmology in the University of Chicago; LOUIS BOTHMAN, M.D., clinical professor of ophthalmology in the University; and SAMUEL J. CROWE, M.D., professor of otolaryngology in the Johns Hopkins University. London: H. K. Lewis and Co. 1938. Pp. 630. 10*s*. 6*d*.

Dr. S. J. Crowe has taken over the editorship of the ear, nose and throat sections of this well-known yearbook. It contains, like its predecessors, a large number of abstracts from the world's literature and reports of cases of interest Among the articles of 1938 summarised is one by A. J. Wright stating his belief that aural vertigo is due to a "focal labyrinthitis," one or more foci of infection being found in all his cases; in the treatment of this affection T. J. Putnam advocates an intracranial approach to the superior semicircular canal through the upper surface of the petrous bone, and destruction of the labyrinth by electrocoagulation by means of a wire introduced into the canal. J. Lempert's endaural method of surgical approach to the mastoid and temporal bone generally is described. The harmful effect of the intranasal use of antiseptics and oils is stressed in several papers In radiography of the larynx A. Gunsett finds that the method of tomography at a depth of 2 cm. shows various pathological changes clearly; in most cases, of course the lesions can be better seen by the ordinary methods of examination, but in carcinoma of the larynx tomography affords valuable information on the extension of the tumour. In the section on the eye many rare and interesting conditions are recorded. There are two favourable reports, by L J. and R F. Fernandez and by T. Willis, of a few cases of gonorrhœal ophthalmia treated with sulphanilamide. From his experience of seven cases A. E MacDonald considers staphylococcus toxoid a valuable remedy in the treatment of recurrent styes

There is a full index of subjects and of authors, which enhances the value of this useful guide to current literature.

Dietetics in General Practice

By LESLIE COLE, M A, M.D. Camb., F.R.C.P. physician to Addenbrooke's Hospital, Cambridge, examiner in pharmacology, University of Cambridge. London: John Bale, Sons and Curnow 1938 Pp 150. 6*s*.

MUCH claptrap is talked and written about dietetics, whence it is refreshing to read Dr Cole's little book which, if it cannot pretend to any particular originality, is free from faddery. The book is remarkably comprehensive Normal diet, common dietetic faults, diet in cardiovascular and gastro-intestinal diseases, in genito-urinary and metabolic disorders and in anæmia and acute infections, are all compactly considered The importance of sound teeth and the diet suitable to ensure their development are matters wisely stressed High-residue diets for the treatment of one type of constipation are given but no reference is made to low-residue diets suitable for constipation of the spastic type. In cases of inoperable carcinoma of stomach the author advocates a diet on the lines suitable for the treatment of gastric ulcer but offers no suggestions as to how the profound anorexia, so characteristic of this condition, is to be overcome There is much good sense in Dr Cole's remark that when treating any case of renal disease it is well to ask oneself whether the restrictions are worth while. There is a useful note on infant feeding General practitioners, especially young ones, will be wise to slip a copy of this little book into their pockets.

Petite chirurgie et technique médicale courante

By G. ROUX, professor attached to the Faculty of Medicine, University of Montpellier. Paris Masson et Cie. 1938. Pp. 591. Frs 120.

INTENDED for students and medical practitioners, this book covers not only the generally recognised field of minor surgery but includes chapters on the minor procedures commonly required in such special fields as gynæcology, ophthalmology, and oto-rhino-laryngology. It also describes the technical details of examinations of the blood, and of the collection of specimens for laboratory examination. The section on fractures is well illustrated, and on the whole adequate, but it is doubtful whether the treatment of fractures of the spine by reduction and fixation in a plaster corset should find a place in a book on minor surgery. The chapter on minor urological surgery is particularly good and contains just the practical information so often wanted and so often wanting. Some of the procedures advocated differ from the usual practice in this country but even so the book is one which in its present form or as a translation could usefully fill a place in the English practitioner's library.

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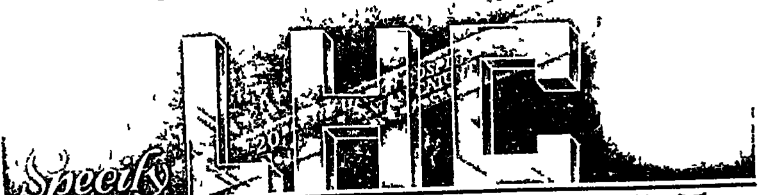

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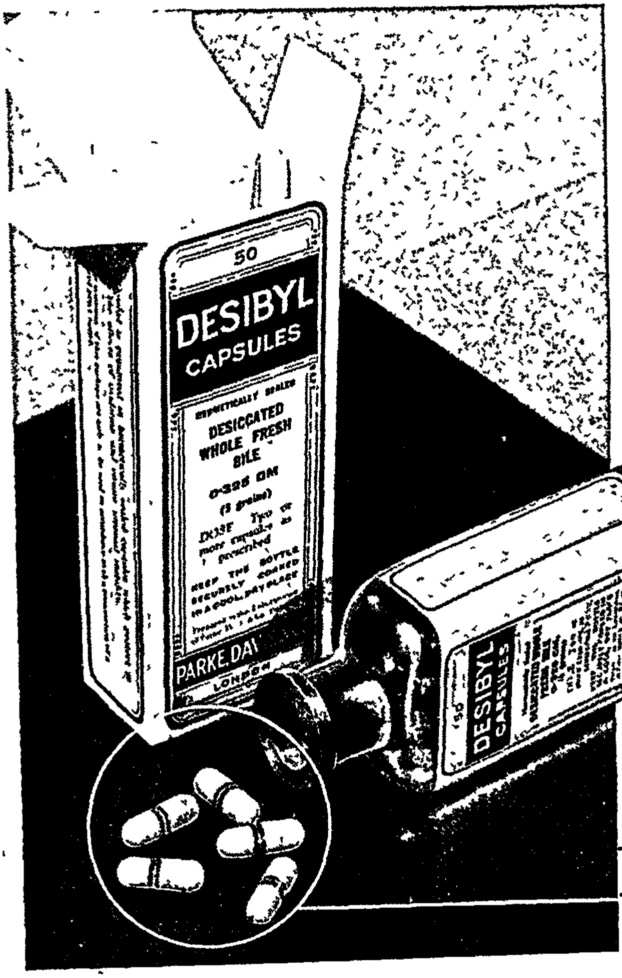

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THE LANCET

LONDON SATURDAY, FEBRUARY 11, 1939

THE NEW OUTLOOK IN PNEUMONIA

AMONG many extensions in the scope of chemotherapy for bacterial infections since the advent of Prontosil in 1935, the introduction of 2 sulphanilyl aminopyridine (M & B 693) for the treatment of pneumonia is by far the most important Of all acute and severe infections by pyogenic cocci, pneumonia is the commonest and causes the largest number of deaths a remedy for it is calculated to preserve more lives than are destroyed by streptococci, or indeed any other micro-organism now influenced by specific treatment This drug has been available only since last summer, and it is not surprising that so far there have been few reports on its effect in any large series of cases, although many who have used it have become convinced of its value Clinical trials are proceeding in several other parts of the world, including France and the United States, and accounts of some of them have lately reached us from Kenya and South Africa In our last issue Drs FARNWORTH ANDERSON and DOWDESWELL reported on 50 cases treated at Nairobi with results of the kind we have been led to expect, there was only 1 death in the series, compared with 8 in a control series of the same number, and the duration of fever and of the necessary stay in hospital were both considerably reduced The South African report by Drs AGRANAT, DREOSTI, and ORDMAN, most of which appears this week, is based on a larger experience but is less easily interpreted since there are racial and other differences between various groups in the total of 550 cases, and complicating factors of occupation and previous immunisation with vaccine Although the results generally were good, they might well have been better had the drug been given without waiting for the diagnosis to be verified by unequivocal physical signs *Extensive though* not complete bacteriological studies were made in both these series of cases, and they lend no support to the idea that any of the many types of pneumococcus now recognised is resistant to the remedy On the other hand little is yet known of the action of M & B 693 on other bacteria (except *Streptococcus pyogenes*) that may be concerned in pneumonia, and the fact that *Staphylococcus aureus* was found in the sputum in 3 fatal cases may indicate a type of infection in which benefit cannot be anticipated

The general impression conveyed in these carefully analysed and moderately worded reports, as well as by earlier ones like that of GAISFORD and EVANS,[1] is that for the ordinary case of pneumococcal pneumonia M & B 693 is a specific remedy, fully adequate in itself, and needing no help from others Serum was given to none of these patients, and there is no suggestion that its further use is contemplated Serum treatment has certainly received a severe setback, and its future is an unknown quantity of no little interest Vast efforts have been made and millions spent in the United States to perfect and extend it, the definition of the higher types of pneumococcus and the provision of useful therapeutic sera for many of them, the introduction of the more effective rabbit sera, facilities for rapid typing, and an insistent educational campaign—all these have been features of a crusade against pneumonia which is perhaps the biggest effort ever made for the specific treatment of any disease Is all this to end in nothing? This we shall not know until M & B 693 has shown what it can do in the more severe form of pneumonia which occurs in America As far as this country is concerned, although FLEMING[2] on theoretically unassailable grounds strongly advocates combined immunotherapy and chemotherapy, it seems unlikely that serum will be used except in cases with a serious prognosis from the onset The limited demand for serum which this entails will not encourage progress in its manufacture

That the availability of serum, at least from commercial sources, depends on a reasonable demand for it is a fact to be borne in mind in basing any future hopes on the paper by Dr LOEWENTHAL which we published on Jan 28 In treating experimental streptococcal infection in mice he showed that serum plus sulphanilamide is more effective than either alone, but it would be rash to look for similar success in treating human infections with a combination of sulphanilamide and any antistreptococcal serum now available The serum used in his experiments was prepared by immunising rabbits with the type 13 streptococcus employed for inoculating the mice, and its protective power was of a high order, unapproached by that of either antitoxin or any so called polyvalent antibacterial serum No such type-specific serum is available for clinical use, and although LOEWENTHAL sees no insuperable difficulty in its preparation for each of the 30 or more types of *Streptococcus pyogenes* now recognised, it is doubtful whether this complex task will ever be undertaken Apart from the fact that chemotherapy alone is so often successful as to restrict the absolute necessity for serum to a minority of fulminating cases, it must be remembered that streptococci cannot like pneumococci be typed in a few minutes or hours This added drawback of inevitable delay might well turn the scale against serotherapy even were anyone enterprising enough to manufacture the necessary sera The only situation in which treatment with type-specific serum is at all likely to be applied is an epidemic due to a known single type of streptococcus, against which a serum might be prepared in time for the treatment of the later cases

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[1] Gaisford, G M., and Evans, W F., *Lancet* 1938 2 14

[2] Fleming A., *Ibid* p 74

CLUBBING

It has always seemed strange that clubbed fingers should be found in so many widely differing diseases, some of which have nothing else in common. Cases of pulmonary suppuration, infective endocarditis, congenital heart disease with cyanosis, aortic aneurysm, chronic diarrhœa, biliary cirrhosis and post-thyroidectomy myxœdema are all reported to have shown clubbing of the fingers, and a hereditary type unassociated with ill health is also described. Although the deformity of the terminal phalanx may differ in degree from case to case the essential abnormality remains the same—namely, an overgrowth of the soft tissues of the nail-bed The most striking instances are the gross cyanotic "drumstick" fingers found in congenital heart disease and in severe chronic disease of the lung, where the hypertrophy involves also the pulp and expands the whole finger-tip. The salmon-pink clubbing sometimes accompanying fatty diarrhœa and the many less conspicuous variations that arise in other diseases all show the diagnostic obliteration of the normal angle between the base of the nail and the finger, which Lovibond[1] has named the "profile sign"

Although it might not have been expected that the nail-bed would react in the same way to such diverse conditions it is probably true that all clubbed fingers are anatomically similar. Hence it is plausible to assume a single mechanism for every case, and some recent experiments on the vascular supply of the digits provide a clue to its nature Wilkins, Doupe and Newman[2] have shown by plethysmographic methods that the blood-flow to the terminal phalanx when the vessels are dilated is appreciably greater than to the middle phalanx of the finger. Grant and Pearson[3] provide further evidence that with the peripheral vasodilatation caused by warming of the body the blood-flow to the finger is greater than the flow to the hand, and the flow to the hand greater than to the forearm. Therefore there is at least this selective function by which the terminal phalanx normally differs from other parts of the limb. That clubbed fingers differ from the normal has been proved experimentally by means of estimations of skin temperature (Mendlowitz[4]) The response of their blood-vessels to environmental temperature changes was qualitatively the same, yet when, by raising body temperature, sympathetic vasoconstrictor tone was removed from the fingers the rate of blood-flow through the terminal phalanx was found to be abnormally great. Likewise the fall of blood-pressure from the brachial to the digital arteries was abnormally small. These observations were found to apply only to the symmetrical clubbing secondary to pulmonary disorders or congenital heart disease; in cases of hereditary clubbing the pressure gradients were normal, and with unilateral clubbing no significant changes in the blood-flow or pressure gradient could be demonstrated. Mendlowitz suggests however that in bilateral and in unilateral clubbing the mechanism is fundamentally the same—namely, an increased circulation in the finger-tips—but that it is obscured in unilateral cases by complicating factors such as nerve lesions.

The significance of these experiments is that it is no longer necessary to postulate a morbid process that acts selectively on the finger-tips, for their vascular supply is already peculiar in health. Hence, if in these diseases a general disturbance of the vascular bed throughout the body could be demonstrated it would still be compatible with different or exaggerated effects in the extremities.

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[1] Lovibond J. L , *Lancet*, 1938, 1, 363

[2] Wilkins, R. W , Doupe, J., and Newman, H. W., *Clin Sci* 1938, 3, 403

[3] Grant, R. T , and Pearson, R S B , *Ibid*, 1938, 3, 119

[4] Mendlowitz, M., *Ibid*, 1938, 3, 387.

TREATMENT OF ACUTE OSTEOMYELITIS

The question of the best treatment of acute osteomyelitis is as actively debated in America as in this country. Addressing the section of orthopædic surgery of the American Medical Association last summer,[1] J. A Key said he has no patience with the argument that the focus in the bone is merely incidental and should be left alone while attention is directed to treatment of the septicæmia These patients, he maintained, were not ill until the bone focus developed, and they are now ill because they have a spreading infection in the bone which is pouring toxins and possibly bacteria into the circulation. The rational treatment, as he sees it, is to drain the primary focus. The discussion that followed Key's paper emphasised the real difficulty. Children over the age of two years are certainly suffering from a septicæmia which is staphylococcal in origin, and it is extremely doubtful what is the correct therapy for staphylococcal septicæmia. Some success has been reported in a small series of cases treated with Uleron,[2] but apart from chemotherapy non-operative treatment seems to be largely a matter of waiting to see what the patient's own reaction to the infection will do The exponents of conservatism suggest that any interference with the bone may spread the infection and that any operation will lower the child's resistance. J C. Wilson said that early drainage had in his experience raised the bacterial count in the blood, but we do not know enough about septicæmia to be sure that this necessarily meant that the child was more ill

The strongest argument for the surgeon holding his hand in the first few days is that cases seen late often do well. An abscess forms under the periosteum, and drainage of this abscess is followed by a smooth convalescence. Cases are also reported from time to time that have recovered without drainage, though there will always be difficulty in persuading other surgeons that such a case was truly one of osteomyelitis As the disease is admittedly blood-borne there is no essential reason why some drug might not counteract the infection in the bone as well as in the blood. Key's contention, however, is that this argument starts from a false premise The infection is carried to t bone by the blood, he says in effect, but there would be no dangerous septicæmia if the bone focus did not develop and throw out its toxins into the circulation Bone is very nearly incapable of forming a natural barrier to the spread of acute infection, so there is no true analogy with carbuncles and other foci of acute staphylococcal invasion in soft tissues

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[1] *J. Amer. med Ass* 1938, 111, 2163

[2] Mitchell, A., *Brit med J.* 1938, 2, 1200

Probably no surgeon would go so far as to say he would never operate on any case of acute osteomyelitis, but there seem to be many who wait until pus actually presents under the periosteum or even in the subcutaneous tissues Have these surgeons given enough reason for their belief that operation on the bone is in itself dangerous? Such operation is not open to the objection that one is cutting across barrier tissues and opening new channels for the spread of septic emboli, as may happen in incising a carbuncle An extensive guttering may cause great shock in a very ill child, but drainage of the bone can be done with a gentler technique, and modern anæsthesia should not itself cause more than a very little disturbance **Winnett Orr**'s method of packing with soft paraffin and encasing the limb in a closed plaster-of-paris splint is designed to obviate further trauma and exhausting dressings Good results are undoubtedly being obtained from delay in operation, and in very toxic cases J T **Nicholson**[1] reports a mortality of 34 per cent from immediate operation and of 11 per cent where operation was delayed Unfortunately there is no real comparison between any two groups of cases, for one group may consist of poorly nourished children who seem to put up no resistance at all to the septicæmia, and the other of sturdy children who would survive the most virulent infection Where there is such variation it is exceedingly hard to prove statistically that the method of treatment influences the outcome Osteomyelitis is now rather rare in this country and there is a danger of competent surgeons arriving at too definite conclusions from success in a few cases

PLANNING IN ORTHOPÆDICS

Sir **Robert Jones** defined orthopædics as the treatment by manipulation, operation, re-education and rehabilitation of the injuries and diseases of the locomotor system The definition, if cumbersome, is accurate and makes it clear that orthopædics is more than a branch of surgery, just as ophthalmology is greater than ophthalmic surgery, indeed, *surgical treatment is a small* component of what it embraces The orthopædist does not wait until the patient or his parents seek advice, for in their early stages many crippling conditions give rise to little pain or disability, arrangements must be made to seek out the affected child, and this is where supremely valuable preventive work may be done Facilities for outpatient treatment of minor disorders must be widely available, and this is best done through a system of clinics centred on a hospital At the hospital itself, which is reserved for the more serious cases, an ample number of beds must be provided, for the duration of treatment is often lengthy On discharge the patient is again sent to the local clinic, perhaps for the completion of his treatment, or for rehabilitation, or simply for supervision Finally there is the training school for those so severely crippled that they cannot, without special training, hope to earn a living under the ordinary conditions of modern life

It is therefore not surprising to find that orthopædic surgeons have a taste for planning, it is part of their business Anyone who has worked in London very quickly finds out the meaning of lack of coordination There, as in most large cities, it is not so much a matter of providing the necessary services as of coordinating those that already exist A child attends a voluntary hospital where, without reference to any outside body, an orthopædic department has been started The child is admitted and operated on Recovery is slow and the surgeon, with only a few beds at his command, disposes of the child by sending him to a country orthopædic hospital where the treatment is completed But it is found on discharge that he is not fit to attend an ordinary school, and he is therefore sent to a cripple school where periodic inspections are made by yet another surgeon There is no continuity of treatment or unity of control This sort of thing, while by no means the rule in our large cities, is far too common, and there is undoubtedly much waste through needless duplication of services Mr **Harry Platt**'s solution[1] is a unified orthopædic scheme arranged under the ægis of a joint hospitals advisory board Such a board exists in Manchester, and what is more important all the constituent bodies, both municipal and voluntary, have agreed that it shall control future hospital policy But even this is not enough Many features of the complete orthopædic scheme would hardly fall within the jurisdiction of a joint hospitals board, such, for example, as outpatient clinics, schools for physically defective children and rehabilitation centres To coördinate these manifold activities one man is needed—a senior orthopædic surgeon, with a flair for organisation and the ability to advise effectively This is Mr **Platt**'s ambition for Manchester, and we cannot but agree that in work of this kind organisation and coordination ought to transcend parochial interests and areal restrictions

Still more romantic planning is that of Prof G R **Girdlestone**[2] who visited South Africa last year at the invitation of the Nuffield Fund He was asked to draft the outline of a complete orthopædic scheme for the Union a scheme for nearly ten million people, a fifth of them of European origin, scattered irregularly over a country the size of France and Spain The problem has been tackled on a federal basis that is to say, although most of the work will be done by provincial administrations, a powerful central council will give guidance in matters of policy Prof **Girdlestone** assumes that the surgeons concerned will be paid for their services The orthopædic surgeon, he remarks, finds most of his patients among the poorer sections of the community, and in Africa his work will be specialised in a way totally unfamiliar to most of us. The inpatient work in the orthopædic departments of general hospitals and in orthopædic hospitals will be like our own, but the "feeder" services—i e, clinics, small town hospitals and mission stations—will be scores or hundreds of miles apart. It is proposed to make highly trained nurses responsible for this part of the work between the surgeon's periodic visits—what might be called the Oswestry or Oxford system, geographically magnified. Such a scheme, to work efficiently, must be in the hands of skilled men and women who will have to sacrifice much of their home life, and should be remunerated accordingly. The Union must be prepared to spend a considerable sum of money; Lord NUFFIELD's *gift* of £100,000, generous as it is, can do no more than set up part of the machinery; it was not in fact intended to do more. Considered purely as a business affair however orthopædics pays; there is no branch of surgery in which so much can be done to restore patients to happy usefulness. Infinite patience and devoted work will be needed to provide the four provinces with a comprehensive orthopædic service. But it is only a hundred years since the Voortrekkers crossed the Drakensberg, and while their descendants may have lost the contentiousness that divided them, the spirit of the pioneers remains. We shall watch with keen interest the work develop.

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[1] Platt H *Med Offr* Jan 14 1937 p 13

[2] Draft Outline of a Complete Orthopædic Scheme for the Union of South Africa

ANNOTATIONS

SEXUAL PERIODICITY IN MAN

MANY animals show seasonal changes in reproductive activity, and in the great majority of these the principal stimulus appears to be light, an increase in illumination being followed by increased sexual activity. Temperature may not affect reproduction, and mice, for instance, will continue to breed normally if kept at 0° C Nevertheless some birds and mammals show seasonal variations in breeding activity which, as in tropical species, can hardly be due to changes in illumination, and there is no doubt that factors other than light may condition reproductive processes.

Whitaker,[1] in reviewing the evidence for seasonal sterility among the Eskimos, is unable to uphold the older reports—notably those of MacDiarmid and Cook—that sexual functions cease during the long arctic night. He quotes the figures of Bertelsen [2] who analysed 16,101 births occurring between 1901 and 1930 in west Greenland and found that more conceptions take place in December and April than at any other time Adjusted to a basic average of 100 per month, each of these peak months showed 113 conceptions, as opposed to 85 conceptions in August, the month with the lowest conception-rate. From June to October inclusive the conception-rate was below the average; for the rest of the year it was equal to or above it Bertelsen believes that the high figure for December is due to the Christmas celebrations, and that for April to the return of spring These observations lend some support to the thesis of Huntingdon [3] that there is in man a "basic animal rhythm" which is so adjusted that the young are born at a time when their chances of survival are greatest Huntingdon concludes that reproductive rhythm in man depends primarily upon temperature and that the optimal mean diurnal temperature for conception is 62° F Factors such as diet and sunlight are thought to be of secondary importance At a meeting of the Royal Society of Edinburgh last July W. P. Kennedy gave an account of the seasonal incidence of conceptions in Scotland, based on data for 1880–1935. He finds that the lowest conception-rate is in winter and the highest in summer, and that a correlation exists between conception-rate and temperature, the mean monthly temperature and the number of conceptions per month rising and falling together. We are led, therefore, towards the conclusion that such reproductive rhythm as exists in man is dependent upon temperature and not upon illumination. But as the sun supplies both heat and light together, and is only one of the sources of them available for even semi-civilised man, it is difficult to assess their effects either alone or together in such material as that on which these analyses are based. In the Eskimos the discrepancies between the older data and those now available may depend on the progress of arctic civilisation. The effect of better living conditions on the age at menarche of Eskimo women is discussed by Mills,[4] who shows that in many races the onset of sexual functions is becoming progressively earlier, and believes that this may have happened with the Eskimos A comparison of the average menarchal age given by MacDiarmid (about 23), Cook (19–20) and Bertelsen (15½), the observations being made in that order about a hundred, fifty, and four years ago, certainly suggests it

Considerably more information is needed about such factors as seasonal variation in marriage rates, the use of contraceptive methods, and the effects of economic conditions on the conception-rate, before such a correlation as that of temperature with human fertility is accepted at its face value Although there may be a definite correlation between the two, this would by no means prove that the one is the cause of the other.

CHANGING PROBLEMS IN FOOD ANALYSIS

IT is interesting to compare the present trend of food examination, as described by Dr. H E. Cox,[5] with the methods of examination and substances looked for in a work written by Rowland J. Atcherley[6] in 1874. In the nineteenth century the main task of the analyst was the detection of gross adulteration; and Atcherley's list of adulterants likely to be found in butter, for example, included water, salt, silicate of sodium, chloride of calcium, starch, mashed potatoes, flour, rag-pulp, gelatin, beef and mutton suet, and various other fats both animal and vegetable. Nowadays the addition of "improvers" and preservatives has taken the place of gross adulteration, and the problem of modern butter and margarine analysis is the examination of the fat and the detection of such substances as diacetyl added as flavouring agents. The food analyst now needs a knowledge of chemistry that would seem formidable to one of the old school, and in addition he must master the microscopy of foodstuffs which has grown into a voluminous and highly useful science of its own. The vast number and complexity of foods available for a modern civilised community has added greatly to the difficulty of arranging them in logical sequence in a textbook, though Dr Cox has chosen an arrangement that is rational enough. Beginning with carbohydrates, and foods of which they are the dominant constituent he goes on to tea, coffee, cocoa, condiments, the products of alcoholic and acetous fermentations, flesh foods, milk and its products, fats and oils. In an appendix he deals with the preservatives regulations and the detection of prohibited colouring matters. Dr Cox writes for those who have a thorough chemical training, so he can omit the elements of his subject, and microscopy is largely beyond the scope of his book, but even so considerations of space compel him to reduce criticism of the analytical processes he describes to a minimum, and he thereby loses something in interest. Nevertheless, Cox is a trustworthy guide to the problems of detecting impurities and the subtleties of conditioning and improving, and his book would enable Atcherley, if he were alive today, to undertake modern food analysis with some confidence.

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[1] Whitaker, W L , *Science*, 1938, 88, 214

[2] Bertelsen, A , *Medd Gronland*, 1935, p 117

[3] Huntingdon, E , Season of Birth, London, 1938

[4] Mills, C A , *Science*, Jan. 6, 1939, p. 11

[5] Chemical Analysis of Foods By H E Cox, D Sc, Ph.D., public analyst for the Borough of Hampstead London J and A Churchill 1938 Pp 329 21s

[6] Adulterations of Food, with Short Processes for their Detection By R J Atcherley London W. Isbister.

EXCRETORY CHANGES AFTER HÆMATEMESIS

DURING the last few years attention has been called by various writers to the association of high levels of blood urea with massive hæmorrhages into the gastro intestinal tract. In the investigation reported on p 323 of this issue Dr Black found that of twelve cases of hæmatemesis the majority showed a definite though usually transient fall in urea clearance, and he suggests that this was due to impaired renal function and not merely to small urinary output or low protein diet. Patients with high blood urea after hæmatemesis usually excrete very little chloride in the urine. The association of high blood urea with low serum chloride—the "azotémie par manque de sel" of the French writers—is well authenticated in many surgical conditions, and on insufficient grounds the raised blood urea after gastro intestinal hæmorrhage has also been assumed by many to be associated with low chloride levels in the serum. In a recent paper *Borst*[1] has shown that in *many* cases this explanation is incorrect. During the period when the blood urea was raised Borst also *found* very low sodium and chloride excretion in the urine, but the level of these elements in the blood was above normal. *In contradistinction* to sodium, the excretion of potassium was high, and the serum potassium content normal or low. The concentration of urea in the urine and hourly output of urea were high, but as in Black's cases the urea-clearances were usually below normal. The explanation of these changes is far from clear. The raised blood urea and increased urea excretion can be largely accounted for by breakdown of the protein of the blood extravasated into the gastro intestinal tract. the extravasated blood is also responsible for part but insufficient to account for the whole of the potassium excretion, the remainder of which must therefore come from the tissues. As regards the sodium and chloride, the explanation is less easy to find. In the two of Borst's patients who recovered, the excretion of sodium and chloride after operation recommenced when the hæmoglobin had fallen to its lowest level, and the suggestion is made that there was imperfect filling of the cardiovascular system. There was not necessarily any shortage of the extracellular fluid as a whole, and in one case there was œdema at a time when sodium and chloride were being nearly completely retained. The teleological explanation is put forward that the retention of sodium and excretion of potassium has the object of increasing the extracellular fluid at the expense of the intracellular. How this result is brought about by the kidney is doubtful. the blood-pressures were normal and in general the urinary volumes were normal or only slightly diminished. It seems necessary to postulate some nervous or hormonal mechanism, possibly brought into action by the dehydration, but in the present stage of knowledge anything further is pure speculation. Excessive adrenal cortical action does not seem likely on quantitative grounds,[2] and the only obvious alternative is absence of some hormone, such as the pituitary hormone which has been shown by Starling and Verney[3] to be concerned with chloride reabsorption from the tubules. From the therapeutic standpoint two objectives arise from this work. first, the volume of circulating cells and plasma must be restored, and for this purpose continuous drip transfusion is recommended, and secondly, urine output should be raised by administration of fluid, notwithstanding the presence of œdema, until the urinary urea concentration falls below its maximum and urinary chloride content rises. It is suggested by Borst that salt should not be given if the chloride content of the plasma is above normal, other workers have, however, found that the blood urea can be brought back to normal, with clinical improvement, by adequate saline administration, and in practice there does not seem to be any risk in giving normal saline subcutaneously and per rectum to remedy the dehydration.

TORSION OF THE APPENDIX OF THE TESTIS

ALTHOUGH it is sixteen years since G H Colt[4] described torsion of the hydatid of Morgagni or testicular appendix, comparatively few examples have yet been reported. Mr McFadden, who records three cases on p 320 suggests that the condition is not very rare but is still generally unrecognised. According to V W Dix,[5] who summarised the clinical findings in 47 recorded cases in 1931 the diagnosis is not usually difficult. Boys between eleven and fourteen years are most commonly affected, and the patient typically gives a history of sudden pain in the scrotum and radiating along the cord sometimes following effort. In the more acute cases, within a day or two of onset the scrotum on the affected side is red swollen and exquisitely tender. There is an ill-defined mass which may be two or three times the size of the normal testis and epididymis with a point of maximum tenderness in its upper part. The patient's temperature is not high and he does not look ill. Often the symptoms are so mild that patients do not seek treatment for several days. In some cases there is a localised tender tumour in the region of the head of the epididymis and the superior pole of the testis. This type should not be mistaken for a cyst of the epididymis because these occur later in life and do not have the same sudden onset. In torsion of the testicle itself the onset may be similar but the symptoms are usually much more severe Dix, however, quotes a case of torsion of the testicle described by A. Mouchet in which operation was delayed because the mildness of the symptoms suggested the lesser lesion. As a rule the condition will subside in time if left alone, but excision rapidly relieves the pain and clears up any doubt as to the diagnosis. At operation the tunica vaginalis is found to contain fluid. The hydatid is usually gangrenous and appears as a black or occasionally reddish body lying between the epididymis and the upper pole of the testis Most of the hydatids described have been about the size of a pea, but they may be as big as the testis. Dix thinks that the larger hydatids are the most likely to become twisted.

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[1] Borst J G G *Acta med scand* 1938 97, 68

[2] Harrop G A, and Thorn G W *J exper Med* 1937 65 757

[3] See Verney E B, *Lancet* 1929 1 539

[4] Colt G H, *Brit J Surg* 1922, 9 464

[5] Dix, V W, *Brit J Urol* 1931 3 245

VASODILATOR NERVES

THE main purpose of the present surgical treatment of peripheral vascular disease is to abolish vasoconstrictor tone by removing portions of the sympathetic nervous system, and the importance of the concomitant removal of vasodilator impulses has perhaps been too little considered. Clearly it would be useful to ascertain what part vasodilator impulses play in the nervous regulation of the blood-vessels of man

Since 1876, when Stricker demonstrated flushing of the extremities on stimulating the distal ends of divided posterior nerve-roots, animal experiments have pointed to the possible existence of vasodilator fibres. The difficulty of demonstrating their presence in man arises from the fact that the removal of vasoconstrictor tone by sympathectomy results in vasodilatation, and this dilatation would make it difficult to show any further increase in the blood-flow through the vessels even if they were subjected to vasodilator influence. It has been thought that evidence of a dilator action might be obtained by comparing the blood-flow through two hands—one of which has been sympathectomised—after full vasodilatation has been produced by body-warming When this is done it is found that the blood-flow through the sympathectomised hand, which has been deprived of both vasoconstrictor and vasodilator nerves, is less than that through the normal hand, in which vasoconstrictor tone has been relaxed by the warming of the body and vasodilator impulses are presumed to be acting The inference that the difference in blood-flow represents the effect of vasodilator impulses is, however, fallacious, for it is found that though the sympathectomised vessels have been released from nervous vasoconstrictor tone they are still held in constriction, the reason being that sympathectomy has made them abnormally sensitive to circulating vasoconstrictor substances

The action of vasodilator fibres on the skin of the limbs has lately been demonstrated by Grant and Holling[1] In normal subjects warming of the body causes vasodilatation not only in the hands and feet but also in the skin of the more proximal parts of the limb, and this flushing of the skin of the proximal parts is independent of the warming effect of the venous return from the extremities The vasoconstrictor tone acting on the cutaneous vessels of the forearm appears to be negligible, for blocking the nerves to the skin has no apparent effect on the amount of blood flowing through it under normal conditions Grant and Holling find that such blocking of the nerves, either by local anæsthetics or by section of the peripheral nerves or the sympathetic prevents the appearance of the flush over the anæsthetic part when the body is warmed, and from this it is deduced that sympathetic vasodilator nerves are responsible for it. So far as the proximal parts of the limb are concerned, therefore, it seems that sympathectomy will do little to increase the blood supply; for the effect of removing vasoconstrictor tone will be small and the accession of vasodilator impulses will be prevented.

In the extremities it has only been possible to show the effect of vasodilator nerves in cases of Raynaud's disease Lewis and Pickering[2] noted that in some cases, if the ulnar nerve was blocked when the hand was in spasm, release of the vasoconstrictor tone in the little finger did not occur; and further, when release of the spasm in the other fingers was produced reflexly by body-warming, the vessels of the little finger remained constricted The failure of vasodilatation to take place in the paralysed area while it is appearing in the other fingers leads to the conclusion that it is mediated by the action of vasodilator nerves rather than by the release of vasoconstrictor tone. These observations have been confirmed and extended to include the lower extremities by Fatherree and Allen[3] of Rochester, Minn. In so far as they may be applied to the treatment of Raynaud's disease by sympathectomy they indicate that though spasm of the vessels is less likely after sympathectomy its duration if it does occur may be prolonged, because the vasodilator fibres have been paralysed by the operation

THE TENTORIAL PRESSURE CONE

"TONSILLAR" herniation—the extrusion of the tonsils of the cerebellum through the foramen magnum by a tumour in the posterior cranial fossa—is now well known and is often demonstrated to students at autopsy. If not relieved by operation this displacement may cause fatal compression of the medulla, and lumbar puncture may precipitate such a catastrophe What is not nearly so widely recognised is that a similar "pressure cone" may occur at a higher level in the cranium, through the incisura tentorii. This important condition is now receiving critical attention, and Jefferson,[4] in an address delivered in the United States, has made a delightfully lucid contribution to its understanding. He begins by describing the anatomy of the structures passing through the opening in the tentorium, and the relation of the temporal lobe to the upper surface of the tentorium When the mass of the cerebral hemispheres is increased by tumour there is a crowding of structures through the incisura tentorii, and in particular the medial lips of the temporal lobes are pushed through the opening Grooving of the uncinate gyri by the sharp edges of the tentorium can often be demonstrated at autopsy if a search is made Such herniation is conspicuous in cases of tumour of the temporal lobe, but it readily takes place when the neoplasm is located elsewhere in the brain It may be found in cerebellar tumours, probably as a result of the hydrocephalus

This temporal pressure cone is a grave complication, for by plugging the opening in the tentorium it compresses the third ventricle, aqueduct, and midbrain By obliteration of the cisterns around the mid brain the circulation of the cerebrospinal fluid is further impeded As Jefferson points out, compression at this level will also interfere with subthalamic autonomic centres and disturbances of these vegetative centres are probably responsible for the fatalities that may follow ventriculography or lumbar puncture in these cases Finally, from the diagnostic standpoint, it has to be realised that tentorial herniation may profoundly modify the clinical picture that was directly attributable to the tumour An excessive degree of contralateral paresis and spasticity, at times a state of decerebrate rigidity, disturbance of pupillary reflexes, nuchal pain and stiffness, and paroxysmal headaches are cardinal features of this type of herniation Its recognition is a matter of urgency, for lumbar puncture should be withheld, and operative relief should be sought immediately

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[1] Grant, R T., and Holling, H. E., *Clin Sci.* 1938, 3, 273

[2] Lewis, T, and Pickering, G W, *Heart*, 1931, 16, 33

[3] Fatherree, T J, and Allen, E V, *Arch intern Med* December, 1938, p 1015

[4] Jefferson, G, *Arch Neurol. Psychiat* 1938, 40, 857.

TO CHINA AND BACK

James Cantlie, whose biography has now been written,[1] would have made his mark in any field, for he was a man of vision without being a visionary Starting as a demonstrator of anatomy, before long he was on the staff of Charing Cross Hospital, an examiner in surgery at Aberdeen, and a contributor to textbooks of medicine, surgery and anatomy At the age of 31 he joined the London Scottish Volunteers, and marrying two years later it looked as if he would settle down as a London surgeon and consultant But his flair for organisation, combined with a facility for friendship and a Scot's tenacity of purpose, was to lead him into less well trodden paths He began to lecture on first aid, and the story of the formation of the Volunteer Medical Staff Corps is quite thrilling When this movement was safely launched he went out to Egypt to fight cholera, getting there his first introduction to tropical diseases Returning to England he consolidated his previous work by a series of inspiring lectures at the London medical schools, and within a year the staff corps had taken firm root In his versatile way he now came out as a preacher of hygiene and began with "Degeneration amongst Londoners" as his text, meeting with opposition and even ridicule Now a senior surgeon at Charing Cross he threw up his appointment to go to Hong Kong, joining the "firm" of Manson and Hartigan , and soon Cantlie's schemes were the talk of the colony There he turned his enthusiasm to the St John Ambulance, the Peak Hospital, and new work on tropical diseases A visit to the Canton leper colonies in the company of Dr Sun Yat Sen resulted in an essay which won the prize of the Leprosy Commission In 1887 he was engaged on the building up of the college of medicine in Hong Kong, later to become the nucleus of the medical unit of the university there He passed through the terrible plague epidemic of 1894 but the strain left its mark on his health and he left the colony in 1896, having won universal respect and admiration

In 1896 Sun Yat Sen visited London and was lured into the Chinese legation in Portland Place with a view to being slipped off secretly and beheaded as a dangerous revolutionary How he managed to convey information to Cantlie, and how the latter by his prompt and persistent action secured his release and saved his life, make a story after Phillips Oppenheim's heart Naturally the future president of China became a lifelong friend We now see Cantlie as the tropical diseases specialist, though he accepted the chair of applied anatomy at Charing Cross Again he plunged into the teaching of first aid and he prepared a new edition of the St John handbook He helped Manson in founding the London School of Tropical Medicine, and for long he lectured there on plague, liver abscess, and kindred topics The *Journal of Tropical Medicine and Hygiene* was his venture, and justified itself at once For twenty five years he remained its editor In 1907 he was the moving spirit in the creation of the Society of Tropical Medicine and Hygiene, and he became president in 1921 Active both in the British Red Cross and the St John Ambulance Association, and author of their manuals, his work was redoubled on the outbreak of war Both he and his wife did all that human effort could do to press forward the foundation of the College of Ambulance, and in 1918 Cantlie was knighted for his services But financial troubles came, and to Cantlie's great grief the college had finally to be closed In 1921 he lost his wife, who had been a noble helpmeet, and he was never the same man again In 1925 increasing ill health made him give up teaching and in 1926 he died

Cantlie had the native shrewdness of the Scot He was always ready to spend and be spent for others, and though he was impetuous at times he was beloved by all who knew him This well considered biography was overdue

THE SITUATION IN SPAIN

Two groups of medical and scientific workers have set their names to fresh appeals for help for Spain The first, covering a memorandum on the food situation, comes from Miss D J Collier, Sir Gowland Hopkins, O M , Lord Horder, Sir Robert McCarrison, Prof R A Peters, F R S , Prof John Ryle and Dr Janet Vaughan, who point out that Spain needs food even more urgently today than she did when the League of Nations commission reported in the autumn We have already quoted Dr Audrey Russell's telegram describing conditions in Barcelona last month , the ration for babies, she said, was 250 g of dried milk and 100 g of sugar weekly—and that was before the final influx of refugees in front of the Nationalist advance Dr Richard Ellis, who was in Catalonia till a few days before Barcelona fell, explains that this milk was only skimmed milk and that this maximum ration was only received in full if nothing went wrong The memorandum also refers to his observations that there is an extraordinarily high sickness rate among the child population , of 460 children between two and five years of age who were supposed to attend a canteen for their food, 175 were away through illness—mostly respiratory An average child receiving the extra relief ration had a hæmoglobin of 40 per cent , and almost none of the women could feed their infants at the breast There is still unfortunately a serious shortage of food in Barcelona and representatives of the Friends Service Council who remain in the city have sent requests for frozen meat On behalf of the All London Aid Spain Council a group, including Prof A St G Huggett, Dr Alan Moncrieff, Miss Esther Rickards, Dr John Rickman, and Dr G M Vevers, asks for help in sending another food ship to Valencia "with the rations they already get, it is calculated that 2s will keep a child in normal health for a month" Conditions in Republican Spain are so bad that Prof J C Drummond reports the statement that '300-400 people die daily in Madrid from actual starvation ' One of the aims of the London council is to persuade Londoners to adopt 20,000 Spanish children, and particulars of this scheme may be had from it at 4, Great James Street, W.C.1. Contributions of food and money may also be sent to the National Joint Committee for Spanish Relief (4, Great Smith Street, S W 1) or the Friends Service Council (Spain), Friends House, Euston Road, N.W 1

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[1] Sir James Cantlie A Romance in Medicine By Neil Cantlie and George Seaver London John Murray 1939 Pp 279 10s 6d

LEPROSY IN EAST AFRICA

The valuable work of the British Empire Leprosy Relief Association is well illustrated in the observations made by Dr Ernest Muir, the medical secretary, during a six months' tour of various countries, mainly in East Africa[1] Taking north-east Africa as a whole, southern Sudan appears to be the only part escaping serious infection This is no doubt largely because of the sparseness and nomadic habits of the population and the difficulty of communications but possibly partly because of the people's milk and meat diet and their hard life which tends to weed out the unfit Areas of high endemicity are found in the north-west of the Belgian Congo and extending over the equatorial province of the Sudan and western part of Uganda The severity of the disease does not always run parallel with its frequency, and although this may indicate variation in strains of bacilli, it might also be explained by the occurrence of mild cases in highly resistant individuals living in areas where they are constantly exposed to infection With regard to outpatient clinics Dr Muir wisely draws attention to the limitations of drug therapy and the necessity for action based on the essentials of general hygiene. Education of the people on the nature of leprosy and simple precautions for its prevention would do much to diminish its prevalence. Adequate nutrition and the treatment of associated diseases in those infected is of primary importance, while sound occupational training, especially in agriculture, would solve many of the problems not only of individual treatment but of segregation and prevention Most important of all is expert advice The bulk of anti-leprosy work is at present being done by religious missions financed by government or native administrations, and much of this expenditure is not bringing in a proportionate return, often only for want of proper knowledge Dr. Muir suggests that a leprosy expert should be appointed for British East Africa who would coördinate the work at the various centres The expense of such a scheme might be met by grants from the various countries benefiting and from the Association, which has already agreed to contribute £250 a year for five years if the scheme materialises

REFUGEE SCHOLARSHIP

There was something of the solemnity of a historic occasion when Sir William Bragg, O.M , rose on Tuesday evening to give the blessing of the Royal Society to the appeal for the protection of science and learning On the previous evening the appeal had been inaugurated in the great hall of University College (reported on another page) when the Archbishop of York presided and the Home Secretary showed how, quite apart from humanitarian motive, this country would gain by the entry of leaders of thought from other countries Sir William Bragg expressed sympathy, as indeed did those who followed him, with all who felt they might be displaced by an influx of scholarship from abroad; but, he said, care had been taken to see that no such displacement would occur, and he spoke of the whole movement as being in the best tradition of the Royal Society which from its foundation had corresponded all over the world In the early days that meant something when the Corr Mem R S had to give account of all the curious things that were happening in his own country, as time passed this traffic of scientific thought had become too great for the single channel, but the spirit of the Royal Society remained the same Sir Frederic Kenyon, speaking for the British Academy which represented the humanities, said how much help had already been given by universities in this country both in their corporate capacity and unofficially by staff and students—who as a body were by no means well off. While everything, he said, was being done to avoid competition it was evident that fresh life was bringing fresh work and that it was safe (as well as noble) to salve the wrecks of scholarship and learning in Europe The Archbishop of York, replying as president of the Society for the Protection of Science and Learning, said the comradeship of scholars was not easily won and was not easily held, for men always tended to demand of study that it should in some way serve their convenience But we recognised the paramount claim of truth, wherever found, to be the property of mankind, and the brotherhood of those engaged in its pursuit The Society had been and would be most careful to ensure that no one was displaced or kept out of a job In most cases after a sojourn in this country it was hoped to find the refugee asylum in some country where the development of life had been less stabilised than in this ancient land

Six other meetings are being held in London at which the speakers will be Sir Norman Angell, Sir Allen Mawer, Sir Bernard Pares, Prof Gilbert Murray, Prof J B S. Haldane, F R S , Prof. P M S Blackett, F.R S , and Miss Rebecca West Lord Winterton and Prof A V Hill, F R S , addressed a meeting at Cambridge on Feb. 8, and Lord Samuel and Sir John Hope Simpson speak at Oxford on Feb. 10 Other meetings are being held in Liverpool, Glasgow, Birmingham, and Leeds, at which the speakers will be Sir William Bragg, Sir Henry Dale, F R S, Mr Philip Guedalla, and Mr T E Harvey, M P.

At 4 P M on Tuesday, Feb 14, Mr. Sampson Handley will deliver the Hunterian oration to the Royal College of Surgeons His address will be entitled Makers of John Hunter

Prof P Larmarque, of the faculty of medicine of the University of Montpellier, will deliver the third Skinner lecture to the British Association of Radiologists at 32, Welbeck Street, London, W 1, at 3 30 P M on Feb. 17. He will speak on diffuse skeletal metastasis in cancer of the breast, and will also describe some results of historadiography

Lord D'Abernon, we are happy to state, is still with us despite an unfortunate slip in an annotation last week. He has had many important contacts with medicine. After presiding for six years over the Central Control Board (Liquor Traffic), he was chairman of the Industrial Fatigue Research Board and (1929–33) of the Medical Research Council He was elected F.R S in 1934

At a meeting of the board of management of the Royal Dental Hospital of London school of dental surgery it was resolved to reopen the school to women students from May 1 next Women students had been admitted to the school from the early days of the late war and were excluded in 1933 by resolution of the board

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1. Summarised in *Leprosy Rev.* January, 1939

SPECIAL ARTICLES

EFUGEE SCHOLARS AND SCIENTISTS

FURTHER efforts for the assistance of academic fugees were inaugurated at a meeting held by the ciety for the Protection of Science and Learning University College, London, on Monday last

The ARCHBISHOP OF YORK who presided, stated at £4926 had been given in spontaneous response the announcement that an appeal would be made e went on to speak of the loss to the world when en of special knowledge were deprived of the chance perfect their researches or communicate their sults The man of special academic training had a rule no general capacity that could be employed a variety of ways, unless he was helped to follow s own vocation, he could not be helped at all

SIR SAMUEL HOARE, the Home Secretary, also ointed out that the work of scholars and scientists ad often handicapped them for the struggle of a ew life Even setting aside all humanitarian motives, e said, the country had gained, and would gain, ermanent benefit of the greatest value by the entry f leaders of thought, of notable teachers and stinguished scientists So careful had the refugee rganisations been to ensure that no immigrant hould displace British labour that 11,000 immigrants ad provided work for 15,000 British workers who ould not otherwise be employed The special areas particular had benefited from the new enterprises t up There was no reason why the world of thought hould differ from the world of industry Prof instein had spoken to him without bitterness of hose who had forced him to leave his country, but ith sorrow at the ignorance that seemed to be estroying so much intellectual life Recognising the ervice of the scholar and its value to the world it as necessary to help these outcasts in the days of heir tribulation

The Marquess of READING said that until recent ears the welcome extended in any country to a an of learning by his fellows had depended not pon the purity of his blood, the shape of his nose, r the colour of his shirt, but upon the quality of his rain and the value of his researches to the progress f civilisation as a whole The need was urgent if hese refugees were to fulfil their mission, not to upplant British by foreign scholarship but to ontribute to the development in this country of art, cience and industry

SIR PETER CHALMERS MITCHELL, F R S, said that eolithic man had deliberately removed pieces of bone rom the skull during life, and it appeared that this repanning was often successful He found it hard to elieve that the necessary experiments had been made, and the consequent precise knowledge of cause and effect attained, by savages with stone implements, e preferred to imagine that it was a tradition— a memory from an older and higher civilisation The modern world, civilised and savage, was full of superstitions and practices far too elaborate on the one hand, and too meaningless on the other, to have arisen independently Might they not be relics of the great civilisations of the past? In modern therapeutics many remedies were prepared in the laboratory, and if we imagined a swift elimination of the scientific men who prepared them and who knew why and how they were used it would be easy to suppose that their memory might survive as a belief that there was some virtue in the liver of men and animals, or in the fat of an adder It was not known why the great civilisations of the past decayed was it so certain that ours, the product of only a few centuries, might not perish as quickly as it had arisen? Only a quarter of a century ago it seemed as if the protection and progress of science and learning were secure in every part of the world Now the men and women who were making a great contribution to every branch of learning and science were being sacrificed to a racial fantasy as evil as it was absurd, and thought was being fettered by the Moloch of the state

Devotees of the arts and sciences had been too disposed to think of themselves as a reserved caste, outside the rowdy turmoil of the political world, getting on with their jobs in fancied security, and lightly taking their daily prejudices from their favourite newspapers But the crisis came on their brothers in Germany with the swiftness of a great convulsion of nature, and, unlike earthquakes and floods, it was contagious and was spreading from one country to another It was well that we should have among us those who had escaped with their lives and could shake them out of their slothful indifference to everything except our own work Nor could we spare the services of any of the men who interpreted the knowledge of the past and who were preparing the way for the advances of the future The crowded state of our own laboratories and universities made difficulties in doing all we wished, but the difficulties could be overcome by money, and such gifts would be a rich investment .

Some did not regard totalitarian doctrines and pogroms as diseases in themselves but as symptoms of a deep seated disorder of society—symptoms like the calamitous race in armaments, the angry struggle for new markets, the continued existence of distressed areas, the clamour of the unemployed, and the luckier demands from almost every industry to get subsidies from the state We needed all the wisdom of men of science, scholars, philosophers and historians in this country and of those who were refugees to guide us, if possible, along the path of sane evolution

BIOLOGICAL STANDARDISATION

FOR the third time during the past four years a special number of the *Bulletin of the Health Organisation* of the League of Nations has now been devoted to the work of the Permanent Commission on Biological Standardisation One of the main objects of the Commission is to establish international standards for the biological assay of therapeutic substances[1] The first of these standards, that for diphtheria antitoxin, was adopted in 1922 and the total is now brought to 31 by the announcement in the present publication of the establishment of standards for four additional hormones These four new standards are provided for the assay of the gonadotrophic substance of the human urine of pregnancy and of the serum of the pregnant mare, and for the thyrotrophic substance and lactogenic substance (prolactin) of the anterior lobe of the pituitary gland. The final decisions regarding the nature of the standards, their preparation dispens and storage at the National Institute for Medical Research, Hampstead, and their distribution therefrom to national control centres in other countries, were taken at the third international conference on the Standardisation of Hormones held at Geneva in August, 1938, at which sixteen experts from eight countries were present Arrangements were made at the conference for further research into the possibility of establishing standards for other hormones of the anterior lobe of the pituitary gland

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[1] See *Lancet* 1935 1, 695

Another section of the *Bulletin* announces the replacement of the original international standard for the antineuritic vitamin B_1, which consisted of an adsorption product of a vitamin-B_1 preparation made from rice polishings on fuller's earth, by a sample of pure synthetic crystalline vitamin-B_1 hydrochloride[2] The results of the investigations carried out with the object of evaluating the international unit in terms of the new standard are summarised in an appendix, which incidentally provides a typical illustration of the international character of the work of the Commission. The comparative tests were carried out by 19 workers in nine countries; 34 estimates of the unit value of the new standard were made by eight different methods, and the mean value of the unit by seven of these methods ranged from 2 6 to 3 2 microgrammes A single observation by the remaining method gave a slightly lower value for the unit Having regard to the great diversity of the methods employed, the results show a very satisfactory degree of concordance and justify the adoption of the value of $3\,\mu g$ for the value of the unit in terms of the new standard preparation.

The greater part of the number is devoted to researches carried out in connexion with the international standards for serological and bacteriological products While no new standards for this type of therapeutic substance are announced, the original standard for staphylococcus antitoxin, which has become exhausted, has been replaced by a second preparation, the unit value of which has been exactly determined The original standards for antipneumococcus serum, types I and II, are also approaching exhaustion, and work in connexion with their replacement is in progress In view of the rapid developments in this field, however, both in regard to the therapy of pneumococcus infections and in the nature of the antisera used and the methods of their assay, the Commission decided to postpone action so far as the adoption of standards for other types of antipneumococcus serum is concerned. In recent years remarkable progress has been made in the purification of old tuberculin. Highly purified preparations are now being used in several countries They possess many advantages over the crude tuberculins hitherto employed, and their value and application is not confined to human medicine The Commission has accordingly decided to establish a subsidiary standard for purified tuberculin; its potency will be determined in relation to the present international standard old tuberculin which, it is expected, it will eventually replace Other matters which have engaged the attention of the serologists of the Commission relate to the present standards for tetanus and gas-gangrene antitoxins and the possibility of establishing standards for anti-typhoid, anti-anthrax, and anti-viper sera The recommendations of the Commission in regard to serological and bacteriological standards were adopted at a meeting held in Paris in October, 1938 The subject matter upon which their recommendations are based is published in a series of papers containing detailed accounts of investigations carried out at the Institutes in Bucharest, Buenos Aires, Copenhagen, Hampstead, Paris, Szeged and Washington Both on the grounds of principles involved and of practical importance in assay, these reports are of interest to all engaged in the work of biological standardisation.

UNITED STATES OF AMERICA

(FROM OUR OWN CORRESPONDENTS)

A SPECIAL MESSAGE ON HEALTH

President Roosevelt addressed to the Congress yesterday (Jan. 24) a special message with which he transmitted the report and recommendations of the inter-departmental committee to coördinate health and welfare activities. In this message the President defines "the objective of a national health programme" It is "to make available in all parts of our country and for all groups of our people the scientific knowledge and skill at our command to prevent and care for sickness and disability; to safeguard mothers, infants, and children, and to offset through social insurance the loss of earnings among workers who are temporarily or permanently disabled." Your readers may well wonder why the definition is not complete at the semicolon. The composition of the inter-departmental committee, representing as it does the public-health service in the treasury department, the children's bureau in the labour department and the Social Security Board is the explanation of the last half of the definition, and it may be feared it is the prime cause of a continuation of the present inchoate organisation at Washington. There seems little hope that Congress will of its own initiative place the health of fathers and mothers into the same category

I have not yet seen the full report transmitted by the President to Congress but the official summary thereof follows very closely the recommendations presented by the inter-departmental committee to the National Health Conference last July.

SULFAPYRIDINE

The council on pharmacy and chemistry of the American Medical Association, at the request of a number of investigators and manufacturers in this country, has adopted a non-proprietary title for the pyridine derivative of sulfanilamide which is commonly described in English literature as M. & B 693 or Dagenan. The name they have adopted is "sulfapyridine." This is a contraction of the chemical name sulfanilamidopyridine.

WINGATE TODD

The recent death of Dr. T. Wingate Todd, director of the Brush Foundation and professor of anatomy at Western Reserve University, removes from the American scene not only a scientist of the first rank but also a stalwart outpost of the British Empire Those who had the high privilege of being entertained in his home at Cleveland traversed the Atlantic when they stepped across its threshold: from the unspoiled accent of each member of the family to the arrangement of the table silver every detail of that home was British Wingate Todd has done for the anatomy of the skeletal system what William Snow has done for the anatomy of the lung He has extended scientific observation by the application of innumerble measurements which nobody else had the industry nd genius to undertake The first volume of his Atlas of Skeletal Maturation" is in print Here ay be seen the high standards of technical achieve-ent which ministered to his research and made the rays so potent a weapon of investigation in his ands In the publications of the Brush Foundation, f which I have 34 (I hope that there are more), ay be seen the breadth of his interest and the ntutored synthesis of his thought Death threatened im in vain He might have lived longer if he had een "careful" but it would not have been the life f Wingate Todd

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[2] *Ibid*, 1938, 2, 1258.

MEDICINE AND THE LAW

Medical Confidences

A young woman was charged last week at Bradford ith having unlawfully used an instrument Dr Violet lover, who had attended her, was present sub pœna ith a view to giving evidence in support of the harge In the witness box Dr Glover made the sual and proper objection to giving evidence "What have to tell was communicated to me in confidence y the defendant in my professional capacity as a octor, and I shall refuse to give evidence unless orced to do so" The stipendiary magistrate asked he prosecution if Dr Glover's evidence was essential he answer was that the witness appeared sub pœna nd that members of the medical profession had no rivilege in law The magistrate allowed Dr Glover o retire from the witness box until all the other itnesses had given evidence He then said that, if he prosecution insisted on calling her, he was bound o order her to give her testimony He had himself reat sympathy with any doctor, or with any priest, ho protested against revealing publicly some onfession received in a professional capacity and he ould be glad to see the law altered Dr Glover's vidence was then given and the accused woman as committed for trial at Leeds assizes

The sympathetic attitude of the bench often does s best to avoid pressing a reluctant witness During nother recent case, where no issue of professional onfidence arose, the chief witness against a young an was his mother Her natural disinclination to ncriminate her son was appreciated by the magistrate ho expressed the view that it would be better that ther evidence if possible should be produced There as of course no question that the mother could be ompelled to give evidence, or at least could technically e punished for contempt of court if she refused to peak. But magistrates fortunately are human eings The attitude of the bench in the Bradford ase will be appreciated by the medical profession

Diphtheria Contact's Dilemma

During a diphtheria epidemic at Wirksworth the edical officer of health's activity in isolating all ontacts has brought to light a curious omission in he law One contact was found waiting at the abour exchange, after he had been examined at he isolation hospital, he was taken home and told e must not go out This direction he disobeyed, trictly, therefore, he could be prosecuted for an nfringement of the Public Health Act But what was the poor man to do? A contact cannot draw ickness benefit under the National Health Insurance Act because he is not suffering from a disease He annot draw unemployment benefit because he has job to go to In its own interests the community asks him to abstain from work, but it makes no provision for him to live There are analogies in our public health legislation for compensating men and women who give up their work in order to avoid the spread of infection The Ministry of Health is doubtless already considering the best means of dealing with the situation

The Improved Public-house

Without suggesting that a higher standard of national health depends on a bigger consumption of cakes and ale, it is possible to support a policy of better public houses as a step towards better public house behaviour This policy met a serious set back in a decision of the divisional court in the Weston case last October The recent reversal of the decision may therefore be hailed as a victory for temperance It is understood that the opinion of the House of Lords is not to be taken

The owners of the Three Queens Hotel at Weston super Mare applied to the local justices for permission to enlarge a saloon bar by incorporating certain adjoining premises The justices announced that the alterations were necessary and desirable and would not destroy the identity of the premises, in view, however, of a decision of the High Court respecting a similar situation in the Isle of Wight, they considered that they had no power to grant the application The opposition to the application, it should be mentioned, came rather from the excise authorities than from any kill joy fanaticism Those authorities contended that there was no jurisdiction under section 71 of the Licensing Act of 1910 to grant an extension of licensed premises unless it took place within the existing premises On appeal to the divisional court the Lord Chief Justice upheld this contention "Alterations in any licensed premises" in his opinion must be literally construed, the word "in" must mean "within", the owners of the public house had urged that the words "alterations in" were equivalent to "alterations of" or "alterations to" The Lord Chief Justice's decision was a serious matter for hotel managements It meant that, if any alteration was desired which involved an extension of the licensed area outside the four walls of the existing premises, the existing justices' licence would be forfeited and a new licence would have to be applied for, which would cover the whole premises and would not be issued without the payment of "monopoly value" Since 1904 there has been a compensation fund which is financed by additional duties paid on the renewal of an old licence and by monopoly-value payments required on the grant of a new one The scale of the monopoly value is sufficiently high to make owners hesitate a very long while before embarking on proposals to alter premises

The decision of the divisional court in the Weston case has now, however, been overruled by the unanimous judgments of three Lords Justices in the Court of Appeal. They hold that it was competent for the justices to consent to an alteration in the physical premises if the justices thought that the proposed alteration, when made would bring the altered premises within the ambit of the licence This opinion will bring relief to owners who are pursuing a policy of improving their houses The justices will be at liberty to sanction alterations which in their opinion do not destroy the identity of the existing licence notwithstanding that the alterations go beyond the four walls of the existing premises.

PUBLIC HEALTH

Supplementary Feeding

FEW people know what are the exact powers vested in local authorities for granting food supplements This is not to be wondered at since the rulings are made in a number of acts and circulars and the wordings allow plenty of latitude in interpretation The Children's Minimum Council however have helpfully produced a pamphlet[1] briefly setting out just what local authorities can do. The council point out that big changes in the law would be required to assure that no child should suffer from malnutrition because of the poverty of its parents but that the chances of health and happiness of thousands could be increased if existing provisions were used to the full.

The supplements for mothers and young children are under the jurisdiction of the maternity and child welfare authority in each district, while those for school-children come under the education authority. The provisions vary widely from one district to another For the most part the powers granted for the mothers and infants are permissive: authorities may provide milk and other foods free and at reduced rates to mothers throughout pregnancy and lactation and to children under five who are not attending school. Iron and vitamin preparations as well as liquid or dried milk are often supplied, and such provisions may be extended without obtaining the sanction of the Ministry of Health "to such an extent and in such a manner as the authority thinks desirable" In addition, in 1937 the Minister asked local authorities to review their arrangements in the light of the report of the Advisory Committee on Nutrition, which had recommended a consumption of 2 pints of milk a day by nursing and expectant mothers and 1–2 pints by children The Minister's circular stated that income scales should be so framed as not to make it difficult for any mothers to take advantage of the authorities' arrangements Certainly in the past restrictions have often prevented the milk from being given where it was needed It has sometimes only been given during the last three months of pregnancy or only during the first one or two years of life. The total quantity allowed to a woman is often only a pint a day and the income scales for determining "necessity" are in many districts far below any accepted estimates of the minimum expenditure necessary for health Under some of the more generous scales free milk is allowed for instance to couples with three children who have less than 40s–50s weekly after rent has been deducted; commonly the limit is 6s per head apart from rent even in the more prosperous areas. This in practice means that a couple with one or two children seldom qualify for free milk although their circumstances may call for considerable self-denial on the part of the mother Under many schemes even though the income is frankly insufficient to supply the needs of full health medical evidence of malnutrition is required before milk is given to a mother Minor regulations such as those requiring the mother to attend a clinic each week also impede the scheme

For children attending elementary schools the local education authority may provide meals at cost price but may only provide meals or milk free for those with some evidence of undernourishment in addition to proof of poverty School teachers, nurses and attendance officers are however encouraged to report those who are apparently in need of extra nourishment, and the school doctor usually reviews the nutrition of all the classes at his routine visits, selecting for more careful overhaul any children who appear to be undernourished The scale of income chosen by an authority to determine necessity has to be submitted for approval to the Board of Education, but there is no standard scale and local interpretation varies considerably The smallest allowances approximate to the B.M.A. scale of cost of feeding and leave next to nothing for warmth, cleaning, clothing, or small personal indulgences. For example, in many areas the children in a family only qualify for free milk or meals if they and their parents have less than [illegible] a week apart from rent: the B M A scale suggests that about 22s. (depending on the age of the children) is necessary to feed such a family. Simple arithmetic shows that some people outside these scales must be undernourished More commonly the scales are rather more generous, a family of that size qualifying if their weekly wage is under 30s

The Children's Minimum Council explain in the pamphlet how to find out which authority is responsible for each service in an area, and they give some sound advice to those who would like to approach the authority. Apart from direct representations some good may be achieved by influencing public opinion; councillors are of course continually confronted with desirable schemes requiring expenditure and the judgment of what is justified must be based to a certain extent on general opinion

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[1] Nutrition and Local Government. By Marjorie E Green Children's Minimum Council, 72, Horseferry Road, S W 1 1938. Pp 18 3d

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED JAN 28, 1939

Notifications.—The following cases of infectious disease were notified during the week: Smallpox, 0; scarlet fever, 1742; diphtheria, 1364; enteric fever, 17 (28 "expected"); pneumonia (primary or influenzal), 1507; puerperal pyrexia, 166; cerebro-spinal fever, 34; acute poliomyelitis, 15; acute polio-encephalitis, 2; encephalitis lethargica, 3; relapsing fever, 1 (Tonbridge); dysentery, 20; ophthalmia neonatorum, 91 No case of cholera, plague or typhus fever was notified during the week

The number of cases in the Infectious Hospitals of the London County Council on Feb 3 was 3212, which included: Scarlet fever, 612, diphtheria, 989 (carriers, 34), measles, 1; whooping-cough, 735; puerperal fever, 16 mothers (plus [illegible] babies); encephalitis lethargica, 298, poliomyelitis, 1 At St Margaret's Hospital there were 27 babies (plus [illegible] mothers) with ophthalmia neonatorum

Deaths—In 126 great towns, including London, there was no death from smallpox or enteric fever, 3 (0) from measles, 2 (1) from scarlet fever, 14 ([illegible]) from whooping-cough, 26 (1) from diphtheria, 35 ([illegible]) from diarrhœa and enteritis under two years, and 173 (28) from influenza. The figures in parentheses are those for London itself

Of the 173 deaths attributed to influenza 63 were reported from the South-eastern Area, 95 from the Northern Area, Liverpool contributing 14, Manchester 8, Sheffield 7, Bolton 6, [illegible] 5; and 14 from the Midland Area, Bristol contributing 5 Fatal cases of diphtheria were scattered over 21 great towns, no more than 2 in any Coventry reported 2 deaths from whooping-cough

The number of stillbirths notified during the week was 211 (corresponding to a rate of 10 per 1000 total births), including 35 in London.

THE AIR-RAID

A series of articles on medical organisation and surgical practice in air attack by
P H Mitchiner, C B E, T D, F R C S, *and* E M Cowell, D S O, T D, F R C S

VI—VARIETIES OF WOUNDS

Wounds of the soft tissues may involve skin, subcutaneous fat, muscle, arteries, and nerves, and are often complicated by damage in their deeper parts to these structures hence it is essential in dealing with all wounds to ascertain whether there are such complications in their depths. It is convenient to consider penetrating and lacerating wounds separately, for though efficient excision must be carried out in both cases, it differs somewhat in practice

Whereas the primary projectiles causing wounds are either fragments of bomb casing, portions of shrapnel (which may take the form of round balls, discs, or oblong segments) or sharp nosed bullets, it must be realised that secondary bodies may act as missiles and be carried in and found embedded in the body Thus the contents of a victim's pockets may be peppered by the force of the burst bomb, and such things as portions of pairs of scissors, penknives, *coins, and pencils may be found distributed* in the body, and occasionally outside objects, such as pebbles, bits of masonry, and even the bones and soft tissues of a nearby victim, may cause wounds and must occasion no surprise if found in the body of a wounded patient

PENETRATING WOUNDS

THE bomb fragments and bullets from machine guns, of which the former alone are likely to be encountered in air raids, cause penetrating wounds The high velocity of the projectile causes considerable disruption of tissues in the vicinity of its track, and a sharp nosed bullet of this type is easily deflected from its course, hence a projectile which has apparently passed through the body from front to back is often found to have travelled round the parietes, having been deflected in its course by a sheet of aponeurotic fascia—e g, the external oblique aponeurosis—or a curved bone surface—e g, a rib—in such a way that no damage has been done to the pleural or abdominal cavities Elastic structures such as arteries, lying directly in the course of the bullet, may spring aside and escape direct injury When the projectile has passed entirely through the body, wounds of entry and exit will be found, but the wound of entry has an extremely minute puncture which can easily escape notice, for it is often a punched out hole with complete loss of skin The track shows high degrees of disorganisation of tissues and is lined with a further area of devitalised tissue mixed with blood clot This enables it to be followed easily through the body Solid organs in the track are usually pulped and show fissures radiating from the track, which is in these situations often considerably larger than the calibre of the bullet inflicting the wound Hollow organs show tearing and destruction of a much greater extent than the size of the missile would suggest The exit wound is more obvious than that of entry in most cases, and laceration and eversion of skin edges is often noted; in some cases these may be of great size with protruding portions of muscle and tendons mixed with blood clot (this latter type is more commonly seen when bone has been disrupted in the track of the missile) Occasionally the exit wound may be small and punched out, it is then very liable to be mistaken for the wound of entry, especially if the latter is overlooked through being small and sealed off, and it may be assumed that the projectile is still present in the body It is therefore necessary that the body should be completely searched to ascertain whether one or two wounds are present If the bullet has damaged only skin and superficial fascia, *a gutter wound will result*

Operation—These patients will come to the surgeon in the casualty clearing hospital with dressings, probably impregnated with antiseptic, already applied at the dressing station, but this does not in any way relieve him of his responsibility for removing these and exploring and excising the wound track at the earliest possible opportunity To facilitate the tracing of the entire track it may be useful to inject with a Higginson syringe a quantity of some coloured fluid, such as a 1 in 1000 solution of brilliant green or of acriflavine, or a 1 per cent solution of gentian violet, but usually this is unnecessary because of the destruction of tissue and hæmorrhage *in and round* the track In every case aim *should be complete* excision followed by suture of the *tissues to secure perfect coaptation* throughout the whole depth of the wound, with the avoidance of any undue tension on the sutures and tissues If any doubt exists about the completeness of the excision of all damaged tissues, drainage of that *area must* be carried out for 24–48 hours, and any part of the wound which cannot be approximated without tension must be left unsutured to secure union by granulation or, if the wound is deep and extensive, by coaptation of the granulating surfaces at a subsequent operation in a few days' time (secondary suture)

In a gutter wound complete excision is simple and straightforward, and primary suture without drainage can in all cases be carried out In dealing with these wounds no more skin should be sacrificed than is absolutely necessary In perforating wounds, however, complete excision is not so easy, unless the track is short and straight, when it should be excised in its entirety With deep and tortuous wounds the best method is to excise the mouth of the wound in the shape of a funnel, to pass a finger or a probe along the wound track, and to cut down on it directly from the surface so far as such finger or probe reaches The finger is then passed on to the next section of the track, which is opened from the surface, and so on throughout the complete length of the track, always provided that such a procedure can be carried out without damage to important anatomical structures, such as nerves, veins and arteries Where these are lying superficially to the track it must be cleaned out in that section by dissection without slitting it to the outer area When the whole track has been thus laid open it can be carefully explored after the excision of all damaged tissues and debris Thereafter damaged vessels must be carefully ligated, for thorough hæmostasis is essential in securing good union without infection and any damaged nerves must be sutured and should if possible be laid in undamaged muscle tissue to prevent adhesions round the suture line The track can then be obliterated by deep catgut sutures drainage being provided if necessary, the overlying tissues sutured the wound dressed, and the area splinted to secure the rest which is so essential to rapid and sound healing In very deep wounds the surgeon may be tempted to try tunnelling dissection for fear of damage to overlying structures; but this is not advisable, for such excision is never thorough and is unlikely to succeed in its object. The greatest care must be taken to excise the first 4 in of the wound track, for this is the area where infection is most likely to be present and where it will be most severe. The track may be found on exploration to enter one of the body cavities. In the case of the abdominal cavity, the track must be excised down to and including the peritoneum and a laparotomy then performed to ascertain what damage has been done in the peritoneal cavity. As a general rule the same principle should be used in the thoracic cavity, though here more discretion is permissible, provided that no severe respiratory distress is present and that there are no obvious signs of active hæmorrhage

LACERATING WOUNDS

Lacerating wounds may be very severe if due to high-explosive bombs and may involve the avulsion of entire portions of the body or evisceration of the victim. In such cases, if the patient is still alive, the periphery of the wound must be excised, displaced viscera cleaned, repaired, and replaced in their natural positions or excised if greatly damaged and their retention is not essential, and the wound closed as far as possible without tension. The chances of recovery in these cases is very small. Many cases of severe laceration or crushing of the soft tissues of a limb are due to either high explosives or falling masonry. These wounds are often complicated by open fractures and wounds of joints In the early stages with these injuries the patients appear to be remarkably well and show very little signs of shock, especially when a tourniquet has been applied round the crushed limb to arrest hæmorrhage. After the removal of the tourniquet, however, severe collapse occurs, and the only way to save the lives of most of these patients is prompt amputation of the damaged member above the already applied tourniquet if feasible. This may sound drastic, but the patient's life is thereby saved; moreover, should attempts at conservation of the damaged limb prove successful, the ultimate result is usually a useless or nearly useless limb and a long and extremely painful convalescence

Operation —All lacerating wounds *must* be treated by free excision of all damaged tissue round their periphery. A guide to the extent of tissue to be removed is the meeting of spurting blood-vessels and muscle which contracts when stimulated. This ensures that all mangled and crushed tissue has been sufficiently removed Hæmostasis must be secured, but it is seldom possible to approximate the ends of damaged nerves, for large portions of these are often avulsed, and in these cases the nerve-end should be trimmed and ligated, the ligature being left long and projecting from the wound so that the end of the nerve can be readily identified, and infection into its sheath so far as possible prevented. The perforated end of such nerves can subsequently be implanted into neighbouring nerves or some other method of nerve repair used, but no such attempt should be made when excising the wound unless by any chance the two damaged ends of the nerves can be approximated without tension. No attempt should be made to obtain union of the edges of these wounds unless this can be done without tension of the tissues.

Dressings and splints —The wound can with advantage be dressed with a 10 per cent. solution of hypertonic saline or, if a large area is involv a 1 in 1000 solution of acriflavine in oleum ne which is non-irritant and painless In all cases t area in which such wounds have occurred must b secured at rest, if necessary by judicious ske splinting, for this goes far to assist healing, al pain, and limit shock and infection Should t wound be infected very great care must be tak to excise every particle of damaged muscle, for it in these damaged muscles that the organisms of gangrene increase and flourish. Plaster-of-paris spl are applied as a routine in Spain

BURNS

The commonest types of burns met with in an a raid are (1) those due to incendiary bombs and t resultant fires; (2) those due to the back flash of sh and bombs; (3) chemical burns from mustard g or lewisite; and (4) electrical burns. These bur are likely to be superficial but may be very exten and the consequent pain and collapse are theref great. First-aid measures are directed primari to the prevention and cure of this primary shock Since the shock is caused in the first place by the pa loss of fluid, and absorption of toxic substanc from the burnt area, the first essential is to treat t by efficient coagulation. Various coagulants ma be used, of which a 2–5 per cent. aqueous solut of tannic acid and a 1 per cent. aqueous solution o gentian violet are the most efficient, the form being preferable because it produces a much mo penetrating coagulum. Tannafax jelly is useful i all superficial burns, and, if no other coagula can be found, lukewarm strong tea is extreme efficient. In all cases of chemical burns it is essenti that the causal agent should be thoroughly neutralis before the coagulant is applied. At the same ti shock must be combated by keeping the patient war and administering fluids and, if necessary, a injection of morphine After this treatment, th burnt patient should be taken to a dressing statio to rest for at least half an hour to recover befor being transferred to a clearing hospital.

On admission to hospital the first essential is to anæsthetise the patient, if possible by means o morphine (which takes about half an hour to work but in the rush of casualties in a raid it will probab be found that this has to be supplemented wi gas-and-oxygen anæsthesia Ether should be avoide if possible, owing to the risk of lung complicatio in these burn cases Once the patient is anæsthetise the dressings should be removed, and the enti burnt area and 6 in. of surrounding skin must be thoroughly washed with soap and water and a sw wiped over with methylated spirit and then w ether, after which, in the circumstances prevaili the only satisfactory dressing is a compress of 2½ p cent tannic acid to which perchloride of merc has been added as an antiseptic in the strength o 1 in 2000. This compress is applied in the form o several layers of gauze or lint soaked in the tan acid solution, which are laid evenly on the area a bandaged lightly but firmly in position. The ar of the burn must be secured at rest, if necessary b splints, to allow an unbroken coagulum to for These splints can be removed in forty-eight hou except in the cases of deep burns in the neighbourho of joints where contractures may result from scarri in which case the splints must be maintained un healing has been obtained. The compress is le undisturbed for two or three weeks and then remove when the scab gives way naturally and the underly tissues will be found normal unless the burn sufficiently deep to destroy the entire depth of the skin (The spray method and the gentian violet treatment are not feasible in the rush entailed in a clearing hospital)

The efficiency in treatment depends on thorough cleansing before coagulation, and, if this cleansing has not been efficiently carried out, sepsis will intervene, as indicated by pain, rising temperature, and a discharge of pus from beneath the bandages When this happens, the whole dressing must be removed and a dressing of a 1 per cent solution of gentian violet applied on two thicknesses of gauze after the area has been cleaned This gauze is to be re damped with gentian violet at hourly intervals at least six times and more often if a firm coagulum has not formed

Burns due to mustard gas—If the patient has not already been decontaminated it is impossible to assist him before donning protective clothing and a gas-mask For the same reason all such casualties must be immediately isolated and have their clothing removed and decontaminated before they are admitted to the hospital wards If possible a ward should be reserved solely for this type of case The patient's gas-mask should be adjusted and all contaminated clothing removed, labelled, and placed in special receptacles, which may be oilskin sacks or tanks filled with a solution of bleaching powder, if bags are used, they should be conveyed to a steam steriliser for decontamination The patient having been freed from contaminated clothing, should be immersed in water and thoroughly washed with soap and changes of water for at least five minutes, alternatively, the part should be washed for several minutes with a 2 per cent solution of sodium bicarbonate After this, if actual contamination is suspected, and as a first-aid measure if no bathing is available, the skin should be well rubbed with a cream of two parts of bleaching powder to one of vaseline, or a paste of bleaching powder and water should be applied to the area and left there for five minutes before removal Bleaching powder must not be allowed to get into the eyes and should not be used if there is an obvious burn of the skin The patient can then be clothed in clean garments and put to bed

Mustard gas can be present on the skin for 5–10 minutes before any burn occurs, and any of the oily fluid found should be carefully mopped off with cotton-wool and the area sponged with methylated spirit and then treated with anti gas ointment When a burn has occurred it should be treated, after neutralisation of the gas with a tannic acid compress as already described The eyes, if affected, should be irrigated with a 2 per cent solution of sodium bicarbonate, and subsequently a drop or two of castor oil, containing 1 per cent atropine should be left in the eye

Lewisite burns immediately, otherwise treatment is the same as for mustard gas

Cordite burns—In burns due to the back flash of shells or bombs (cordite burns) the area must be thoroughly sponged with a 5 per cent solution of sodium bicarbonate before cleaning and applying the coagulant, otherwise their treatment differs in no way from that described

Electrical burns are often immediately fatal If the patient survives great and persistent shock occurs and pain although it may be absent at first develops after twenty four hours is very great, and may continue for months The lesions which are usually small and occur at the points of entry and exit of the current, may vary from erythema to gangrene and the healing is very slow and often accompanied by extensive sloughing The treatment is to clean the burnt area and to apply a coagulant and sedatives will have to be given for the pain Veganin is extremely useful for this purpose but may be supplemented with morphine in some cases, though every effort should be made to avoid the use of morphine and to discontinue it as soon as possible, for there is a great tendency for these patients to develop a morphine habit

WOUNDS OF BLOOD VESSELS

In air raid wounds lesions of vessels and soft parts alone are seldom seen The missile strikes the body with such force that the neighbouring bones are almost always involved and at the same time other lesions occur An illustrative case was related to one of us by Dr Trias of the Hospital Clinico of Barcelona He began by operating on an extensive wound of the thigh involving the femoral vessels A small wound of the buttock was next noticed and the abdomen was opened to repair a visceral injury After this a tiny scalp wound was observed—this was left alone, but the patient died a fortnight later of septic meningitis The vessels may be completely severed, torn laterally, contused or injured in such a way that the intima and media are more or less intact while the outer coat is torn and weakened In wounds of the limbs it is common to find both artery and vein damaged at the same time, together with collateral branches and tributaries In avulsion or crushing of a limb the main vessels may sustain such damage that they become sealed and no longer bleed In large lacerating wounds of the soft parts damaged vessels may be found during the routine surgical treatment, and, on the other hand, it is possible for small penetrating bomb fragments to damage a large vessel such as the jugular vein, at the same time making a very small external wound

Contusion of large vessels is due either to the direct impact of a spent fragment or to the disturbance caused by the passage of a high velocity missile in the immediate neighbourhood of a large blood-vessel Although the vessel may look normal when exposed, it will probably be pulseless and hard owing to thrombosis Sencert distinguishes three varieties of contusion —

1st degree damage to the intima alone—fine transverse striations

2nd degree damage to intima and media, with occasional thrombosis

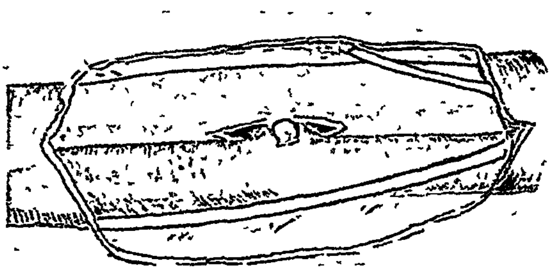
3rd degree more extensive damage with retraction and thrombosis

Primary thrombosis occurs early in these cases and the firm white fibrin can be distinguished easily Later, secondary thrombosis occurs the clot being red, soft and easily expelled like paste from a tube These secondary clots may extend into the branches of the vessel and interfere with the establishment of the collateral circulation

Hæmatoma—If the wound of entry is small a large amount of blood may collect in certain situations such as the neck axilla thigh or calf In recent cases soft clots and fluid blood are found As a result of increased local pressure the circulation of the collateral vessels becomes affected, the parts below become devascularised and gangrene may supervene

Concomitant lesions—The possibility of adjacent nerve trunks, tendons and other structures being injured at the same time as the vessels must not be overlooked and the surgeon must not be content with dealing with the damaged vessels alone The importance of cutting away devitalised muscle and of removing septic fragments of clothing and foreign bodies has been mentioned in a previous article (*Lancet*, Jan. 21, p. 171).

Hæmorrhage—The general effects of hæmorrhage have already been described (*Lancet*, Jan. 28, p. 229) The serious consequences of allowing severe traumatic anæmia to remain untreated must be thoroughly appreciated. A casualty with a rapid pulse-rate after the receipt of a severe lacerating wound is either suffering from the *effects of hæmorrhage or the onset* of gas gangrene, or both conditions All personnel engaged in *first-aid treatment* must be taught to look for hæmorrhage cases first and to apply *immediate* treatment. A pad, improvised or otherwise, is pressed into the wound and held firmly until a dressing and bandage can be applied. If an artery is bleeding, pressure is applied to the appropriate pressure-point until the dressing is in place All wounds of the lower limbs are to be treated as stretcher cases The tourniquet is not to be used indiscriminately but only when it is certain that a large artery is bleeding or when a limb has been torn off, in which event it must be applied as close above the wound as possible A simple type must be selected, and one that can be efficiently and rapidly applied, even in the dark In air-raids this treatment should be carried out by police, firemen or air-raid wardens



Gunshot wound of both vessels in Hunter's canal. The missile passed between the vessels, cutting the outer coat of the artery and opening the vein. At the operation the vein was sutured and the artery repaired by sewing a flap cut from the roof of the canal round the bulging inner coats Patient made a complete recovery.

At the dressing station a small operating-theatre, with a surgeon and team, should be available for dealing with urgent wounds of the blood-vessels Hæmostasis may be temporarily secured by merely suturing the skin over a large wound and firm bandaging, by the application of pressure forceps, or in some cases ligature It may be necessary to transfuse such patients before they are evacuated Each case should be distinguished in some special way—e g, by a red label

At the casualty hospital cases of hæmorrhage should be sought for in the reception room by the receiving officer and given priority. If bleeding has ceased, some of the patients will require resuscitation before being sent to the operating-theatre.

Operation.—A few special instruments are required: clamps for temporary arrest of hæmorrhage (Lynn Thomas's); needles and fine suture material; and Kocher's metal tourniquet In urgent cases a blood-transfusion may be given immediately before or at the beginning of the operation

The general principles of blood-vessel surgery include (1) the making of an adequate incision to ensure wide exposure of the parts involved; (2) temporary hæmostasis by the application of a tourniquet (Kocher's metal pattern is very useful) or by temporarily clamping the main vessel above the site of the wound, by an instrument such as the Lynn Thomas's tourniquet forceps; and (3) dissection of the vessels involved.

When the lesions have been found the following procedures may be indicated. ligature of the artery or vein; simultaneous ligature of the main artery and vein; suture of artery or vein for complete tears; suture of the outer coats of either vessel and thrombectomy for contusion of the vessel with thrombus formation and stoppage of the circulation in the affected limb. If the vessel has not already been completely divided, it is safer to complete the division and ligature each end separately, rather than to ligature in continuity

Sir George Makins pointed out in 1917 the advantages of simultaneous ligature in dealing with a wound of a large artery, when the corresponding vein was intact After ligature of the vein as well as the artery the already *diminished volume of blood* is retained in the limb for a longer time and therefore improves the conditions necessary for the preservation of its vitality. In one series of cases personally observed *in France, simultaneous ligature of the* superficial femoral vessels was performed nine times, and of the popliteal vessels four times, with successful results in seven and three of the cases respectively.

In war surgery suture of arterial wounds is disappointing, time is wasted, and thrombosis generally supervenes. The blood-flow may, however, last *long enough to allow the collateral* circulation to develop. The same remarks apply to the use of Tuffier's tubes Venous suture is simpler and more satisfactory. The suture material is kept in sterile liquid paraffin, with the needles threaded, ready for use Plastic operations, for the repair of the outer walls only, are interesting In these cases the possibility of damage to the intima must be remembered. *Fascial transplants can be stitched over the weak spot.* Sometimes the inner coats are seen bulging through the tear in the outer sheath, like the inner tube of a bicycle tyre through a tear in the cover (see figure).

Thrombectomy may occasionally be a useful procedure Cases have been recorded in which, after a large thrombosed artery had been opened and clot removed, the circulation has been re-established temporarily, *but long enough to save the limb*

The application of the principles here described will enable the surgeon to deal with injured blood *vessels in any part of* the body. On the whole the results of ligature of the large trunks are good. Amputation can always be resorted to later if necessary, and the patient should always be given a chance In the aftercare of these cases it is often wise to splint *the limb to afford perfect rest* for the first few days Where plaster treatment is adopted as a routine, the wound will not be disturbed for a fortnight, and the additional covering to the limb will assist in maintaining warmth Occasionally during an operation on either the thorax or the abdomen for a penetrating wound, a torn vessel is the only injury found. Ligature and application *of the usual technique may save life.*

The BRITISH JOURNAL PHOTOGRAPHIC ALMANAC for 1939 describes new developments and instruments for photography and gives details of the various processes Short notes are included on such diverse matters as copyright, *reproduction fees and the* properties of chemicals used in photography. The almanac maintains its reputation for usefulness, and is available in paper and cloth covers from Henry Greenwood and Co, 24, Wellington Street, London, W.C.2.

PANEL AND CONTRACT PRACTICE

Incapacitating Sickness in Scotland

THE Department of Health for Scotland has just ublished the seventh of a series of annual reports n incapacity from sickness among insured persons n Scotland[1] The report, which relates to the year nded June 30, 1937, is particularly interesting since contains, in addition to the usual detailed analysis f incapacity according to illness, locality, age, sex, nd marital status, an account of a special investiga on which indicates that in spite of the exceptionally rge volume of incapacitating sickness recorded, quivalent to 14 92 days per insured person, about 5 per cent of the insured population were at no ime incapacitated during the year

The total number of insured persons in Scotland or the year 1936–37 is estimated at 1,787,700, of hom 66 per cent were men, 29 per cent single omen, and 5 per cent married women, and the umber of days of incapacity per insured person in ach of the three classes was 14 13, 15 60, and 21 27 espectively Respiratory diseases, chiefly influenza nd bronchitis, formed the main certified source of ncapacity, causing 20 per cent of the total days of ncapacitating sickness Next in frequency came iseases of the nervous system and organs of special ense, rheumatism caused 12 5 per cent of the ickness, accidents 7 4 per cent, and tuberculosis per cent There was an epidemic of influenza in the arly months of 1937, the most severe experienced in n the seven years covered by the series of reports nd the incidence of incapacitating sickness was eavier than in any previous year Apart from nfluenza however, the trend of sickness has been pward since 1931–32, the average number of days' ncapacity per person having risen from 8 8 in that ear to 11 2 in 1935–36 and to 10 9 in 1936–37

In previous reports it was shown that a high roportion of the total working days lost by the nsured population through sickness is due to the hronic invalidism of a comparatively small number f insured persons Such persons form a group that eems to correspond, comparing health insurance ith unemployment insurance, to the "hard core" f unemployed workers who year after year are unable o obtain employment though not necessarily unemloyable In order to explore the subject further, the epartment undertook a sample investigation into he sickness experience of six approved societies aving a membership regarded as representative of he whole Scottish insured population The recorded ttacks of incapacitating illness upon the members f these societies were specially associated so that it as possible to say how many times a member had een incapacitated during the year Applying the esults of this sampling to the whole insured popula ion, it appears that in the year 1936–37 the per entage of persons continuously incapable of work hroughout the year was 1 7, that 23 5 per cent ere incapacitated on one or more occasions, and hat 74 8 per cent were entirely free from incapaci ating sickness The high proportion of persons in he third group is the more remarkable since the ear covered by the investigation was one in which nfluenza was exceptionally prevalent

Though the incidence of unemployment due to ickness was heavy on the Scottish insured population —for the total number of working days lost was no less than 26,673,950, or an average of 14 92 days per insured person—nearly three quarters of the insured people were free from incapacitating illness throughout the year This conclusion, though it speaks well for the general health of the Scottish workers, throws into relief the gravity of the problem created by the "hard core" of chronic incapacitating illness The number of persons continuously incapable of work during the whole year was 30,754, forming only 1 7 per cent of the insured population, but their days of incapacity, 11,225,000, accounted for two fifths of the total days lost owing to sickness Moreover, the volume of chronic incapacity is increasing The number of "chronic" cases—i e, cases of incapacity extending over the whole of a year under review—per 1000 insured persons has risen from 12 9 in 1931–32 to 17·2 in 1936–37, and a further rise may be expected as the insured population ages in consequence of the decline in the birth rate

The prevalence of chronic incapacitating sickness is one of the most formidable of the problems that now confront health-insurance administrators

Post-confinement Pregnancy

Two practitioners who issued certificates of incapacity to women who had recently been confined giving the cause of incapacity as pregnancy, have appeared before a medical service subcommittee and received warnings as to the necessity for scrupulous care in issuing certificates In the first case the certificate was given by a locum and the principal practitioner said that he would probably have ascribed the incapacity to anæmia and debility following pregnancy, for in his opinion many post confinement cases of debility were the result of the pregnancy rather than of the actual confinement In the other case the doctor said that when he gave the certificate he was not in any doubt as to the confinement having taken place, and that he used the word "pregnancy" deliberately, for in his opinion the debilitated condition of the patient was due not to the confinement itself, but to the repeated pregnancy after a very short interval He was not familiar with the provisions of the appropriate certification rule but if he had been he would not have certified differently

The subcommittee's report says that it is difficult to understand the attitude of mind of a practitioner who certifies that a woman is rendered incapable of work by reason of pregnancy when she is not, in fact, pregnant The word pregnancy can have only one meaning—viz, that the woman in respect of whom the term is used is with child If the woman has already been confined it is obvious to anyone that the condition of pregnancy has passed The certificates which a practitioner issues are usually intended for submission to approved societies whose officers are lay people, and it is essential that they should be so worded as not to mislead those officers In the subcommittee's view the argument adduced by the practitioners suggested ingenuity rather than conviction, and they advised that in cases in which incapacity is due to post-confinement debility it is desirable to give the condition that name on a certificate Few will quarrel with this summing up of the position in relation to pregnancy, though there can be little doubt that certificates of incapacity due to appendicitis are often issued and passed without question by approved societies after the inflamed appendix and the patient are known to have parted company

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[1] Edinburgh H M Stationery Office Pp 111 9s

LETTERS TO THE EDITOR

STIGMA AND PREJUDICE

SIR,—It was refreshing to read the sensible annotation under this heading in your last issue The change of name from "asylum" to "mental hospital" was a justified concession to popular prejudice; though it is unlikely to have any permanent effect on the attitude of the public unless it is accompanied by a corresponding change in the "atmosphere" of the institution and the methods of treatment employed To change the name again, however, from "mental hospital" to "hospital for nervous disorder" is not only unnecessary but also illogical to the point of practical inconvenience. How is the lay public to distinguish between a "hospital for nervous disorder" and a "hospital for diseases of the nervous system"?

Similar arguments apply to the naming of psychiatric outpatient clinics Perhaps it is true that "psychiatric" is too "difficult" a word What term, then, should be used? If "mental disease" is thought to sound too ominous, the milder and wider term "mental illness" seems the obvious alternative. We are asked to omit the word "mental" and substitute "nervous" or "nerve" To do this however is to perpetuate a serious misconception, and must hinder to some extent our efforts to get the psychoneurotic patient to understand clearly that he is suffering from an illness of his mind rather than of his body. In my experience, patients easily understand a simple explanation of the difference between psychoneurotic and psychotic types of mental illness Psychiatrists are apt to be unduly "defeatist" in their attitude to the education of the general public on this subject

The name borne by a psychiatric outpatient clinic is not, in the long run, of great importance from the point of view of attracting to the clinic those who need its help In actual practice, no clinic conducted on progressive lines in a large centre of population is likely to experience a lack of patients

There has also been much discussion recently as regards *where* psychiatric outpatient clinics should be held The question is apt to be obscured by conclusions erroneously drawn from clinics that have been established in places where the circumstances are peculiar. Thus in St Albans, owing to its proximity to London, there is no first-class general hospital, but the county mental hospital is close at hand. It is therefore natural that the excellent psychiatric outpatient clinic which has been developed by Dr W. J T. Kimber should be located at the mental hospital

The ordinary provincial city, however, usually possesses a large and well-equipped general hospital, and often is some distance from the local mental hospital. In the provinces, therefore, it is generally desirable for the outpatient clinic to be held at the local general hospital The status of such a hospital as the chief medical centre of the city enhances the prestige of the psychiatric clinic in the early stages of its development, and is of great assistance in attracting patients to the clinic At the general hospital, moreover, skilled laboratory and radiological services are available, and also the consultative help of general physicians and surgeons

I am, Sir, yours faithfully,

STEPHEN A. MACKEITH

Warwickshire and Coventry Mental Hospital, Feb. 6

CORRECTION OF POSTURE

SIR,—In reply to Mr. Bailey's comments on my letter of Jan. 7 on the Feet of the Industrial Worker, I would state that re-educative exercise as practised by the members of the Chartered Society of Massage and Medical Gymnastics is an integral part of the orthopædic plan for reconditioning cases of poor posture The aim of the instruction is to promote good habits in the correct control and in the right use of the body statically The test of the final value of the training is seen when the instruction is over. Teaching, to be of real use, must awaken the patient's sustained interest in maintaining a good posture. Exercise is, therefore, a means to an end. Goldthwait's system of exercises is to be advised. In aggravated cases, however, the anti-gravity muscles are overstretched and fatigued There is erroneous deflection of the body-weight referable to the spine and lower extremities Physiological deformity is present. Such deformity still further weakens the spinal and abdominal muscles These factors all depreciate muscle power, just as they do in conditions such as poliomyelitis. The spinal muscles become adaptively tensed and fixed.

Overstretched and fatigued muscles—in the spine and abdomen in this case—often require at first a period of rest with relaxation in recumbency to eliminate gravity and weight-bearing and to intercept unbalanced use of the muscles Physical therapeutics must subserve these principles. Exercises applied at the wrong time may well make strong muscles stronger, but they also make weak muscles weaker It follows that the rest has to be of a corrective nature to straighten out the spine, to expand the chest, and to get rid of the adaptive fixations of the spinal muscles This is best done in selected cases by a period of several weeks' complete and thorough rest in bed, the patient lying on the back on a mattress stiffened with fracture boards. He is given a small pillow beneath the head and knees. Thrice daily for half an hour after meals an extra pillow is placed beneath the thoracic spine, leaving the lumbar spine unsupported He lies thus with his hands up behind his head, thus expanding the chest and opening up the subdiaphragmatic space As he gets used to the leverage—beginning often with ten minutes and working up to a maximum of half an hour—the [illegible] pillow may be removed This is called the position of hyperextension, and, when it is being adopted, the patient is instructed in deep diaphragmatic breathing, keeping the lower abdomen contracted in doing so. After each half-hour period of hyperextension he is made to lie over on the face for half an hour, with a pillow placed lengthwise beneath the trunk He then goes back into the first position [illegible] is not allowed out of bed, but may sit up to meals The slowly applied but sustained corrective leverage of this treatment is considerable and has to be used with care by the doctor. At first the lumbar spine is found to be in a state of fixed lordosis in many cases. If such a case is examined in about a fortnight the spinal fixity will be found to be improving, allowing the lumbar spine to lie flat Too little use is made of rest in restoring the tone of muscles It means patience and passivity, but there can be no short-cuts when rest is really indicated Other methods may be more pleasurable, less irksome, and therefore more popular, but to obtain lasting benefit, rest, along the lines indicated, should be insisted upon

It is at this phase of progress, and only then, that *treatment* by spinal massage and muscle re education begins The recovery of tone and of muscular responsiveness must precede re education in their control These control exercises are taught in recumbency The patient is taught to flatten the lumbar spine and to contract and "set" the side abdominal muscles alternately The abdominal muscles are strengthened by suitable exercises At the end of several weeks we have a patient whose body is remodelled, with supple controlled muscles, and with the fixity of the spine corrected, and one who knows how to breathe correctly with an elevated chest Any persisting fixity of the spine may be assisted by passive corrective movements and manipulations A posterior plaster shell may be useful in slender visceroptotic subjects, made in the corrected position

The next stage in breaking the patient's bonds is to teach him how to stand, sit and walk erectly He is now in a position to profit by this instruction in control Ere long it becomes habitual, because, as Magnus has shown, if improved posture is maintained by conscious effort for a short time of a few weeks, then the increase of reflex tonus obtained by such posture will serve to maintain and to improve the attitude as a habit Then the orthopædist usually insists on a light spinal brace which spans the lumbar urve, for use as a useful and temporary makeshift when the patient is up until all chance of relapse has gone The order in which all these measures are used is of great importance—namely, corrective rest, re education, and support The support is simply a reminder to the patient and his muscles that he must not fall back into his old ways The treatment has a mental as well as a physical basis The patient's interest and sustained powers of coöperation must be enlisted The psychological aspect of many orthopædic conditions is of the first importance, because the structures which the surgeon wishes to influence are under the control of the patient's will

A graduated modification of the above regime may have to be kept up for a long time, planning resting periods in the day and so on The patient's clothing must be examined, so that no constriction of the chest or drag on the shoulders takes place The chair and desk he sits at during his daily work must be inspected and put right Tonic, nutritional, and supportive treatment may also be called for But in time our patient gradually moves up the hill of recovery and attains to right use of the body, feet, and all! Let him be seen in, say, a year's time, and instead of a weedy looking specimen of humanity there often is a splendidly erect man with good vitality and good mental, visceral, circulatory, nervous, and muscular tone His previously weak, unbalanced, and fixed back is now strong, beautifully balanced, and flexible This is the reward of all that has gone before To the uninstructed small variations from correct use mean little or nothing If they are noticed, little practical recognition of them is usually made I call to mind a slender, badly postured, semi invalid visceroptotic type of female patient with symptoms of duodenal ileus upon whom an operation was considered By treatment conducted along the lines indicated, in two years she was cured of all her symptoms, had put on two stone in weight and became erect and energetic In a formal discussion on visceroptosis I once ventured to submit that great improvement was possible by orthopædic measures The speaker then told me that if I wanted to try to make silk purses out of sow's ears I was welcome to try! This is an attitude of defeatism which is far too common

From the description given, it will be appreciated that much detail requires careful and constant attention, but this is the price of success *It must be done properly or not at all. In orthopædics I would like the guiding note to be that of the establishment of perfect use and a keen appreciation and understanding of what all this must mean in regard to the physical education of the young and the rehabilitation of the chronic case, in whom imperfect use is so common* Think what it would mean to the people of this country if this aspect of orthopædics had a foremost place in medical teaching and practice Has orthopædics in this sense, Sir, ever been applied as it should be in this country? I beg leave to doubt it, and yet it is of the first importance in regard to national fitness in the best and highest meaning of the term *We must apply our minds to states of early physiological dysfunction of the locomotory system and seek to prevent and intercept them by putting in a stitch in time*

I am, Sir, yours faithfully,

Edinburgh, Jan 30 W A COCHRANE.

RENAL CHANGES IN MALIGNANT HYPERTENSION

SIR,—Prof Duguid contends that the picture described by us as occurring in the rat kidney after partial occlusion of the opposite renal artery is not the picture of chronic interstitial nephritis, that the tubular changes we have described are such as may be caused by severe toxæmia or by dietary disturbances, and that our evidence cannot be said to support the concept of malignant hypertension

If these criticisms are justified then our work, so far from forming "a valuable new contribution to the study of vascular disease," merely adds to the dismal confusion which envelops the subject We cannot, however, let them pass unchallenged We are content to let your readers judge from our photomicrographs how closely we have reproduced in the rat the *essential* vascular, glomerular, and tubular lesions of "chronic interstitial nephritis" or "malignant nephrosclerosis" We were careful to point out that the extent of renal damage and interstitial fibrosis is greater in the later stages of malignant hypertension than in our experiments, but this is a difference of degree, and not of kind. We specifically described the occurrence of interstitial fibrosis in the rat Thus on p 138 "others (i e, other tubules) are atrophied devoid of lumina, and widely separated by interstitial fibrosis" Moreover, interstitial fibrosis is quite clearly illustrated in fig 16 Yet according to Prof Duguid we "venture to explain the *absence* (our italics) of interstitial changes on the ground of the short duration of the experiments" However unintentional, this is sheer misrepresentation of our findings

As regards his second point, the fact that tubular degeneration and atrophy can be caused by severe toxæmia or by highly artificial diets has no bearing on our argument It is clear from our illustrations that the damaged tubules are in close anatomical relation to the affected vessels and glomeruli the whole forming a specific composite lesion If this lesion were due to toxæmia (whatever that may mean) it is remarkable that the "clamped" kidney should escape

Prof Duguid is of course free to draw what inferences he cares from our illustrations but we can find nothing in his letter to persuade us to retract or modify our own conclusions—namely, that the lesions in the rat's kidney are due solely to hypertension, that they tally in all essential characters with those of malignant hypertension, differing only in the degree of renal destruction, and that our experiments support the concept of malignant hypertension.—We are, Sir, yours faithfully,

C WILSON,
F. B. BYROM.

Medical Unit, London Hospital E 1, Feb. 6.

THE AIR-RAID

SIR,—I have read today the letter of your correspondent Dr L. H. Lerman. Like him, I have been following with interest the articles written by Mr Mitchiner and Mr Cowell, giving us valuable instruction in the practical methods of dealing with the casualties among the civilian population which will surely result from an air-raid

May I be permitted to give the result of my own experience in the prevention of postanæsthetic conjunctivitis? In the earlier years of practice I was frequently called upon to administer anæsthetics and soon standardised for myself the open method, using the Schimmelbusch mask It fell to my lot to be, if not the first, very nearly so, to give open ether. One day in 1896 I was administering chloroform for an operation for the ligature of hæmorrhoids and at the dilatation of the sphincter ani the patient, a middle-aged man, collapsed I had a supply of pure ether ready and at once poured about a drachm on the mask · the man's colour returned, his pulse recovered, and the operation was completed Up to that time I had never given open ether nor had I heard of its being so given, though A C E. (one part of alcohol, two of chloroform, and three of ether) had been used at my hospital (Guy's) for several years. In the prevention of postanæsthetic conjunctivitis my usual practice was to rub in Vaseline round the eyes before commencing the administration. The patient's eyes were kept closed throughout the operation except for an occasional inspection of the pupil reflex I would suggest that the method detailed is a satisfactory and practical one, and will give excellent results. No complicated anæsthetic apparatus is necessary and the simple procedure as above will, in my opinion, be suitable for use in war-time emergencies

I am, Sir, yours faithfully,

Headington, Oxford, Feb 4. H. W. WEBBER

PROGESTERONE AND THE ADRENAL

SIR,—On Jan 14 you commented on the work of Gaunt and Hays, who have reported success in maintaining adrenalectomised ferrets with injections of progesterone (*Science*, Dec. 16, 1938, p 576) May we mention that about the same time we published observations on the same subject in the *Revue Française d'Endocrinologie* (December, 1938, p 400)? We succeeded in prolonging the life of adrenalectomised rats of both sexes by injecting progesterone in daily doses of 4 mg ; the rats died when the treatment was discontinued. This dose is certainly very large but is not excessive, the rat unit of the most active cortical fractions known hitherto being 0 5–1 0 mg.

The next question we examined was whether the progesterone produced by the ovaries of rats had the same effect as the progesterone injected We treated immature rats, males and females, before the adrenalectomy for three days with daily injections of 40 units of Lutocrescin, a gonadotropic hormone prepared from pregnant-mare serum; after the operation 20 rat units of lutocrescin was injected daily. The male rats died shortly after the adrenalectomy, the average survival-time being three days. Of 10 female rats treated, 2 lived longer than ten days; the rest died, but the average survival time was six days It seems therefore that immature female rats treated with a gonadotropic hormone produce enough progesterone to lengthen the survival after adrenalectomy.

We are not in a position to answer the question whether progesterone is or is not a product of the adrenal cortex, playing a definite physiological part also in adrenal regulation The failure of the previous experiments of Swingle and collaborators was very probably due to inadequate dosage; it is, however, possible that progesterone acts only after a chemical transformation which some species are not able to perform. It seems at any rate very remarkable that the hormone which effects the morphological transformation of the uterus should also have an action on adrenal regulation of the general metabolism

We are, Sir, yours faithfully,

ANTON FISCHER,
M ENGEL

Budapest, Hungary, Feb. 2.

CLINICAL USE OF STILBŒSTROL

SIR,—Dr Varangot describes Dr. Muriel Boycott, Dr Zuckerman and myself as being "enthusiastic" in our observations on this new synthetic œstrogen. I am sorry that he should have obtained this impression, for we attempted to report our findings without the expression of any emotion Among others we were invited by the Therapeutic Trials Committee of the Medical Research Council to test the œstrogenic properties of stilbœstrol on monkeys and human females This was merely the logical extension of the work of Parkes, Dodds and Noble on the biological activity of this compound Since the investigation was organised by a committee whose most important reason for existence is the ability to register an impersonal and unbiased opinion, it would be singularly unfortunate if any report to that body were couched in terms which could with justification be regarded as expressing any such unscientific emotion as enthusiasm.

Discussing the possible "toxic" effects of the compound we were of the opinion that in view of the rarity with which these occurred in our experience and the mildness of their manifestation, it was not justifiable to cite them as a serious contra indication to the use of the preparation as an œstrogenic agent.

Up to date I have personal experience of 66 patients treated with stilbœstrol, almost four times as many as the number quoted by Monsieur Varangot, and the doses given have sometimes been much larger than those he mentions Of these only 6 have complained of transient nausea, unaccompanied by vomiting. I have recently had the opportunity of discussing the matter with Dr Jacobsen, who has an extensive knowledge of the clinical use of this preparation in Scandinavia, and he expressed interest and surprise in the experiences of Dr Varangot I am aware of toxicity tests on animals which have failed to show liver damage after the application of large doses of the material.

All that can be said at the moment is that our results do not coincide with those of Dr Varangot.

Further experience is needed to assess the importance of the toxicity factor. In the meantime may I assure Dr. Varangot that it was not our purpose to advocate the use of stilbœstrol in preference to other œstrogens Advocacy is a feature of commercial pamphlets, of which there has been a [illegible] during the past month, and judging from the fact that the indications commercially given for the use of stilbœstrol include such conditions as habitual abortion, we may expect more surprising effects than nausea and vomiting from the promiscuous use of this compound —I am, Sir yours faithfully,

P M F BISHOP

Endocrine Clinic, Guy's Hospital S E 1 Feb 6

EXAMINATION FOR INSURANCE COMPANIES

SIR,—I have recently been approached by an insurance company with the request that I should examine on their behalf and report on a patient who was involved in an accident some months ago and who is under the care of a neighbouring practitioner There was no suggestion that the practitioner concerned should be notified, or that I should meet him in consultation on the case, and I have agreed to act for them in the matter only on condition that the consent of the patient's own doctor is obtained, and that I should see the case in consultation with him if possible

At about the same time I was informed, after the event, that a patient of mine who had suffered an accident some weeks before had been examined by a medical officer acting on behalf of the interested insurance company Again, the examination was arranged and carried out without my knowledge or consent, which, needless to say I would not have withheld

It seems to me that the sort of procedure outlined above smacks of the unethical, and it would be of interest to know whether such procedure is on the increase and if so whether it has the general approval of your readers —I am, Sir, yours faithfully,

Baldock Herts, Jan 31 J H MOYNIHAN

SELF-CONSCIOUSNESS AND PUBLIC SPEAKING

SIR,—The correspondence on this subject inspires me to remind your readers of an old tip for nervous, self conscious public speakers So simple Just before you are due to speak, you touch the tip of your tongue with the glowing end of your cigarette The reaction short circuits the inhibitory impulses responsible for stammering and allied phenomena of a distressing character And if you an Englishman, are speaking in French the burn may also give a lisping quality to your speech, infusing *into* it a note which your compatriots, if not your hosts, may interpret as Gallic

I am, Sir, yours faithfully,

CLAUDE LILLINGSTON

League of Red Cross Societies Paris Jan 30

LYMPHOGRANULOMA VENEREUM

SIR,—I have just read with considerable interest the abstract in your issue of Jan 28 (p 216) of an article on lymphogranuloma venereum (*Vida Nueva*, 1938, 42, 465) The multiplicity of therapeutic agents which have been tried and the disappointing or negative results obtained in this disease are common experience and your comment that Pardo Castelló et al. have not used sulphanilamide or similar chemotherapeutic agents is most pertinent In this latter connexion you quote the experimental work of F. O MacCallum and G M Findlay reported last July (*Lancet*, 1938, 2, 136) and I would like, if I may, to draw your attention to a case of lymphogranuloma inguinale which I treated successfully with sulphanilamide and which was described in the *British Medical Journal* (1938, 2, 1013) So far as I can ascertain this is the first case record of its kind in the British literature, and although only one patient had been treated the report appeared justified by the small number of cases which are met with in this country and by the hope that chemotherapy would be employed by others with access to greater clinical material. As a matter of fact as a result of this case report a large scale trial of chemotherapy in climatic bubo was arranged and is at present being carried out in the East —I am, Sir, yours faithfully,

S M LAIRD

Special Treatment Centre, Shelton Stoke-on Trent, Feb. 2

DIVERTICULA OF THE DUODENOJEJUNAL FLEXURE

SIR,—In his interesting paper in your issue of Jan 28 Mr Raven expresses his belief that this condition is a clinical entity with definite symptoms He also states that the diverticulum passes inwards, upwards and to the *right*, being found on the *right* side of the flexure at operation In 1937 I operated on a woman aged 70 who gave a history of attacks of epigastric pain for many years, no vomiting and no hæmatemesis but much flatulence There had been an exacerbation of the pain, accompanied by vomiting, during the six weeks before she came under observation, the pain being relieved by vomiting X-ray examination after a barium meal showed a diverticulum at the duodenojejunal flexure Laparotomy revealed the scar of a healed ulcer on the lesser curvature of the stomach near the pylorus and a diverticulum situated on the *left* side of the flexure, passing upwards under cover of the inferior mesenteric vein towards the pancreas The wall of the diverticulum was very thin It was found necessary to retract the inferior mesenteric vein upwards in order to free the diverticulum from its surroundings and excise it The line of Lembert sutures at the end of the operation lay on the left side of the flexure

I am, Sir, yours faithfully

Wimpole Street W 1 Feb 5 C L SHATTOCK

PLACENTAL BLOOD FOR TRANSFUSION

SIR,—We would like to answer the interesting letter of criticism from Drs Brewer and Howkins which appeared in your last issue May we reply under the headings they suggest?

1 *Quantity* —The average yield we report (80 c.cm) is from fifty strictly consecutive cases The only selection of cases we allowed was made clear in our original publication The maximum yield from any placenta was 120 c cm We find that we have a continuous supply of blood from our maternity unit so that it is possible for us to discard the smaller quantities, and we now store only those flasks that contain 160–180 c cm of transfusible fluid We do not consider this a negligible quantity, especially for emergency transfusions but we do not suggest that placental blood will completely displace the blood donor It will be a very useful adjunct

2 *Sterility* —We entirely agree with Drs Brewer and Howkins that it is important to make this point quite clear When we first started to collect placental blood we found that we had to experiment with the anticoagulant It was some time before we finally decided upon the use of citrate saline the early specimens were therefore discarded and the question of sterility did not arise When the anticoagulant had been settled we began to culture all our specimens, with the results already reported On looking up our records we find that only a few specimens of blood were given without previous culture having been done

But is the blood obtained from a donor always sterile? May not a donor have a temporary staphylococcal or streptococcal bacteræmia when his services are required? Butler (1937) in her monograph on blood-cultures confesses that she obtained 5 per cent positive cultures from healthy individuals and quotes other bacteriologists who report positive cultures in 12–27 per cent. of cases. In the series of placental bloods collected by a trained team with adequate care we obtained only 6 5 per cent. positive culture.

Has Dr. Brewer, in his capacity as medical officer to the London Blood Transfusion Service, investigated the sterility of blood from donors?

3. With regard to the *feasibility of collection* by the "ordinary personnel of the labour ward" our experience is that collection is perfectly feasible with a little special training. Our own team consists of at least three and if possible four. Originally it included the resident obstetrical officer, a staff midwife and two pupil midwives: now that all the staff midwives are thoroughly conversant with the technique and have had the possible dangers of contamination explained to them, the collection of blood is left to the responsibility of the staff nurse in charge of the delivery, with the assistance of a second staff midwife and one or two pupil midwives. Unexpected medical supervision is maintained from time to time. It is perhaps significant that our maximum quantities have been obtained when a medical officer was in charge of the case, probably owing to the extra pair of hands.

We want to make it clear that we do not consider the method one that should be left to a maternity-ward staff without special precautions, and it is quite impracticable in the patient's own home or in any hospital where there are no adequate laboratory facilities. But in spite of the difficulties mentioned, and the criticisms made, we feel sure that it should not be abandoned, and we hope Drs Brewer and Howkins will try it out again. We are surprised at the poorness of their average yield (47 c cm.) and we feel that it could be improved upon.

We are, Sir, yours faithfully,
A. P. M Page,
K. G. Seager,
E M. Ward

City General Hospital, Leicester, Feb. 7.

PROPHYLAXIS OF TUBERCULOUS EMPYEMA

Sir,—The article by Dr. L Roberts in your issue of Jan 21 is an excellent summary of the facts. The alarming frequency of this condition as a complication of artificial-pneumothorax therapy, and its appalling mortality, are too little realised by many who dabble in diseases of the lungs

My main purpose in writing is to question the statement, dogmatically cited by Dr. Roberts without any qualification whatsoever, that when an effusion follows a spontaneous pneumothorax tuberculosis is the cause Is this invariably the case? To my mind, from a purely theoretical consideration, at least one other possibility must occasionally be considered. If the lung does not expand pari passu with the absorption of the air from the pleural space a partial vacuum would be created, and to prevent this, nature abhorring a vacuum, fluid is poured out—an œdema ex vacuo

The whole subject of the ætiology of spontaneous pneumothorax requires revision and authoritative opinion. Sweeping statements, such as that in question, if not absolutely correct, obfuscate rather than clarify the situation

I am, Sir, yours faithfully,
Maurice H. Pappworth.

Liverpool, Jan. 26.

LITTRITIS?

Sir,—I shall be glad if any of your philologically inclined readers can shed light upon the present spelling of the word "littritis." As editor of a medical journal, I have always inserted an "e" before the suffix in my spelling of the word, arguing that there is no valid reason for depriving Ale Littré of the last and accented letter of his surna, but my contributors, pointing to Stedman and Dorla maintain that such excision is sanctioned by lo custom and euphony My own feeling is that th correct way of spelling the name of this affection "littréitis" and that the quadrisyllabic is qu as euphonious as the *trisyllabic* and philologica much more accurate; but I am open to convict if there is precedent for the use of the latter.

I am, Sir, yours faithfully,
C Louis Leipoldt.

South African Medical Journal,
Wale Street, Cape Town, Jan. 24

AUTOSERUM THERAPY FOR THE OPIUM HABIT

Sir,—Personal experience of autoserum thera for the opium habit, as successfully used by D Margaret Vivian (*Lancet*, 1937, 1, 1221, 1239), ma be of interest; perhaps even of help, for there mu be some medical men addicted to this drug wh would wish to end their degradation

I had been taking opium about three years wh *I saw a note about* the method in the "Medica Annual" for 1938 Six months ago I underwent a course of treatment lasting fourteen days, and seve days later I returned to practice (I realise now th this time was rather too short and might well hav ended in failure which would have been most unju to the method; not because there was any cravi *for opium* but because sheer physical weakness ma work a real hardship) The "withdrawal symptoms" were trifling. For a few nights I had to take so bromide *and chloral to get sleep* *Desire* for foo never failed Further, the method is free fro danger; not that that matters much The one hard*ship is the great physical* weakness, which ma every action, however slight, a burden There is n sudden cutting-off of opium, but the amount gradually lessened, and the addict is not aware th he has had his last dose I am now able to do ha physical work without fatigue I can once mo take a full interest in life and fully exercise m mental powers

For manifest reasons I must sign myself
A B C

Feb. 7.

THE LANCET 100 YEARS AGO

February 9, 1839, *p* 719

From an article on digestion by Mr Henry Ancell

. . . The proper function of the liver is believed to be th of acting upon the blood, venous or arterial, as the ca may be, *for the production of the bile, and the* product of bile the end in view in furnishing an animal syst with a liver. Conjectures have been thrown out from ti to time that this organ, from its magnitude and situat must be endowed with some more essential func but none of these have been generally received as wort of credence; . . . but I submit whether the liver is not organ *of digestion, properly so called,* occupying th situation which it does for the purpose of preventing th passage into the general circulation of those solu substances taken up by the branches of the vena po which are likely to prove injurious to life, and for th purpose of affecting the first changes upon other princ after their absorption. . . . I am inclined to think th *every meal, and every species of food* capable of per digestion, furnishes the elements of some of the princ of bile at the commencement of the process, which i conveyed by a kind of lesser circulation, somew resembling the smaller or pulmonary circulation, thro the liver, to whose action it is submitted, in a ci back again to the duodenum, for the completion of own *digestion and defecation*

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations Each contributor is responsible for the section for a month, his name can be seen later in the half yearly index

FROM AUTOLYCUS

II—BOOKS AND BANQUETS

Last week I threatened to return to the subject of medical authorship, and I have not relented Those who are familiar with the classics of the last century, such, for example, as Gowers' famous and still unrivalled text-book, Byrom Bramwell's clinical lectures, or, to go further back still, Murchison's "Continued Fevers," will be keenly aware that the quality of medical writing is not what it was In those leisurely days a man had time to think and authorship was for him a serious responsibility prepared for by years of careful clinical and pathological observation, and by the detailed recording of his material as it passed through his hands Finally, in maturity he sat down to distil the essence of his experience and to inform it with his ripe judgment He did not write simply because an enterprising publisher's traveller had persuaded him that there was "room on the market" for a work on his subject and while he may not unreasonably have hoped that his book would enhance his reputation his prime impulse to write came from the knowledge that he had something to impart to his professional brethren A clinical text-book of the first rank can be written on no other basis than that of personal experience and the capacity to live over again that experience as the writer sits down to his task It was in such circumstances that the works I have named, and doubtless others that will occur to my readers, were composed, and thus it is that they still retain the breath of life, where much modern writing smells only of the lamp, and can yet be read with keen intellectual and artistic satisfaction even by those not specially interested, or deeply versed, in the particular fields of medical knowledge with which some of them deal They were works of art as well as text-books The charm of these older writers is most readily seen in their general descriptions of the course and features of some malady from its onset to its close They had the conception of disease as a process, a sequence of events, representing a struggle between the organism—the individual—and some pathogenic agency For them disease was not an entity having independent existence, but a chain of events They told its story as a continuous tale, and gave each malady an individuality that individuality by which the true clinician identifies it throughout the range of its variations It is this quality that lends these clinical descriptions their vividness and life, and impresses them upon the mind in a way that a drab catalogue of signs and symptoms can never do It would be ungenerous to maintain that we have not to day a few text books of this quality, but where so many are written it is inevitable that they should remain the rare and delightful exception The truth is that the task of authorship is quite differently thought of now by many medical writers They do not wait until they can write from their own experience for authorship has perhaps become too deeply involved for its own good in this affair of career making Perhaps for text-books, as for memoirs, authors are born and not made, but even the born author should write from his own knowledge acquired by personal observation and not by compiling a composite précis from a pile of other men's books on the floor beside his desk For a medical author the writing of a book should be the crown of his labours and not a first step on the ladder of a career But if publishers will continue to tempt young men, they will go on writing, and the booksellers' show cases and shelves will continue to groan under the deadweight of stillborn works on medicine, while well written, authoritative text-books will remain rare

* * *

Now it was not for this solemn moralising that the editor designed me, but for something more in the nature of light relief, and it is time for me to revert to type So I pass from books to banquets, from the sublime to the ridiculous, for medical banquets are never sublime and are often not sufficiently amusing to escape the ridiculous

The Shorter O E.D. gives two definitions of a banquet namely, "a sumptuous entertainment of food and drink" and "a ceremonial or state feast followed by speeches" I suggest a variant, thus "a sumptuous entertainment of food and drink ruined by speeches" These speeches! What anticipatory agonies for most of the speakers, what realised boredoms for the listeners! We all know their dreadful sequence First there is the loyal toast It is short and to the point We like it for its own sake and because after it we can return to our tobacco Then the guest of the evening rises to propose the toast of the particular medical institution or society whose banquet he is adorning Usually he is some distinguished layman, and it is always interesting to the student of after dinner oratory, that most neglected and abused of the arts, to watch the lay speaker facing up to a medical audience First let us be frank and admit that no healthy minded layman can possibly like doctors as a class They have the most unpleasant associations in his mind These are laid down in infancy and become conditioned reflexes. There is an interesting—but somewhat distressing—experiment by which this may be demonstrated If you go into a class room in an infant school and utter the single word "doctor," more than half the children present will automatically thrust their faces forwards, open their mouths and protrude their tongues—not out of any motive of disrespect but because they have endured the amenities of what is called "child welfare" and associate a doctor with a person who looks down their throats to see whether their tonsils are gone already, or still remain to be plucked

Is it surprising therefore, that the layman's impulse is to regard us all as at best but regrettable necessities? So conscious is our speaker of this unuttered—and unutterable—sentiment that he is instinctively moved to hide it by extremes of eulogy in characterising our activities Fortunately for this desire there is yet another expression that pops up unbidden into his mind He recalls having heard—and who has not heard it—that ours is a "noble profession," and he clings to this and makes it the keynote of his speech This cue is all very well but again he cannot forget that doctors are an odd lot, inclined to be oracular and authoritarian, and requiring to be placated In the end his speech is a compromise and takes on the character of a bishop's address to a class of catechumens awaiting confirmation in the front pews. He pats us on the back, speaks of the relief of suffering as our first preoccupation and only possible interest Passes on to a quasi-humorous reference to the occasions—not rare indeed—when doctors differ, and proceeds to tell that hoary tale—told apparently to every invalid by every doctor some sixty years ago—of how he was given "six months to live" and yet look at him. We have to, and continue to hope that he is nearly finished, but like so many speakers he can't finish. He hasn't thought of a peroration and has talked out his text, but finally he sputters out like a dying firework and sits down. By this time the audience has grown somewhat restive. It's about half-past nine, and there begins a steady trickle of guests furtively creeping out between the tables for those mysterious visits that banqueters are so prone to. Within a few seconds there are many gaps in the ranks of the assembled sitters, the average age of those remaining has notably declined and so has the average blood pressure.

However, within a few minutes the absentees troop back, having taken a fresh lease of life, and the toastmaster announces the next speaker who is to return thanks. Although this speaker is a doctor and knows better, he has to pipe to the first speaker's tune, and is constrained therefore to confirm the high opinion of our profession to which the proposer of the toast gave such gracious utterance He in his turn s what an eminent person, and how eloquent, the g of the evening is, and sits down amidst perfunct claps So far humour has been absent from th proceedings—or not noticeably present—but now i is someone's turn to propose the health of t remaining guests *en bloc*. Human nature can sta no more pomposity so the next speaker is expec to be humorous The press representatives who a present now gather up their notebooks and pen and beat a retreat Not only are they complete disillusioned about this banquet business, but th know that humour is taboo in press reports of dinne and is generally frowned upon in English public No one trusts a humorist, though we may laugh him, and to allow one's self to be a wag in publ to blight one's hope of a career anywhere but on music hall stage Still he who proposes the toa the guests is expected to make this sacrifice. someone of whom nothing much can be expecte future is picked upon for the task. I have, in t sometimes been asked to do it myself, so I sp with authority

And now, as it seems that I am about to sp myself, the moment is opportune for some expos of my views as to how after-dinner speeches sho be composed and delivered These can easily until next week.

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS

Cost of Public Assistance

IN the House of Commons on Feb. 1, Mr S O. DAVIES moved: That, being of the opinion that the existing inequalities in the burden of public assistance, due to exceptional distress in some areas and comparative prosperity in others, constitute an anomaly calling for redress, the House would welcome a measure to spread the burden more equally over the whole country. It was now admitted even by the present Government, he said, that the block grant very largely failed to meet the legitimate needs and demands of the Special Areas. It was regrettable that the promise made by the Government during the passage of the Unemployment Act, 1934, that the state would assume complete financial responsibility for the able-bodied unemployed had not been carried out. The position was that public assistance committees, even in the most distressed areas, had been compelled to make a contribution under the Act to the Unemployment Assistance Board equal to three-fifths of the expenditure on the able-bodied unemployed. This provision had operated with extreme harshness on the areas with the highest degree of distress. The expenditure on public assistance should be equated all over the country, and the whole of public assistance should become a national charge.—Mr LEONARD, in seconding the motion, said that apart from the very heavy burden cast upon the resources of local authorities in respect of those who were held to be outside the scope of the scheme of the Unemployment Assistance Board, even those who were within that scope were not being attended to as they should be by the Government. The local authorities still had to provide for medical requirements, and a medical certificate was even required to work the Unemployment Assistance Board's scheme In Glasgow, for example, in one year they had to issue no fewer than 39,520 medical certificates for that purpose, and not a halfpenny came back to the local authority in recompense. The fact that poor people had not now to apply to a poor-law authority had reduced their reluctance to apply for relief, and the resulting increase in the number of applications had increased the burden on the finances of the local authorities, especi in the distressed areas —Sir GIFFORD FOX said t the scheme suggested by Mr. Davies would rev tionise the system of local government Mo would be raised by one local authority and sp by another far away. This cut across the princ that there should be no taxation without represen tion. The proposal would encourage a large am of "squandermania" The present block-grant sys was based on the balance of need. It was rev every five years, and if local authorities found th the circumstances had changed in their areas th were able to make their case for the adjustm of the grant. The third quinquennial period star on April 1, 1937, and the national block-grant f was increased from £43 922,000 to £46,172 000. T local authorities were also helped by the Unemplo ment Insurance Act, 1934, which relieved them of c tributions in respect of certain classes of able-bo unemployed costing £2,180,000. In addition, the 19 Act provided for a revision of the method of di buting the block grant in favour of the poorer areas

Mr. BERNAYS, Parliamentary Secretary to t Ministry of Health, said that it could not serio be argued that the state should take over the co of public assistance without also taking over t administration, and that would substantially dimi the powers of local authorities Moreover, if t burden of public assistance was too great for so authorities to shoulder, it might well be arg that that was true also of other local services Su a line of argument led in the end to a position in wh local government would virtually disappear, wh would undoubtedly be a major disaster. He co think of no social service which was so essentially local service as public assistance As to the sugges pooling of rates, such a system would endanger n only the autonomy of local authorities but also t efficiency in relieving distress In cases where t greater part of the cost of relief would fall on anot authority and not on the one incurring the expend the chief essential for prudent administration wo be removed The Government had gone far to m the case by the recent alteration in the assessm of the block grant, which was designed to g greater assistance to the hard-pressed areas

Safety in Mines

In the House of Commons on Feb 1 Mr **JAMES GRIFFITHS** asked the Secretary for Mines if it was intended to introduce legislation during this session to deal with the report of the Royal Commission on safety in mines —Captain **CROOKSHANK** replied that the government had given careful consideration to the report and the necessary preparations for a bill to implement its findings was being put in hand immediately Such a measure would necessarily be long and complicated and could not be ready for introduction this session He added that the report called attention to a number of improvements which it is possible for the industry to make on its own initiative, and he therefore invited all concerned to see how far such recommendations could be implemented in advance of any legislation

Civil Medical Defence Services

In the House of Commons on Feb 2, in answer to a question from Sir **FRANCIS FREMANTLE**, the **MINISTER OF HEALTH** said that plans had now been made for finding about 200 000 beds in existing hospitals and institutions in the first 24 hours of an mergency by sending patients home and transferring hem to other accommodation and by putting addiional beds and equipment in the wards Another 100,000 could be found later by using ancillary parts of hospitals not at present used as wards To enable these plans to be put into operation, onsiderable quantities of spare beds and bedding and other equipment had been obtained and were on order Plans had also been drawn up for the groupng of the hospitals and the working arrangements which would operate between the individual hospitals n war time Progress was also being made with the reation of new hospital accommodation The Ministry's hospital officers had noted buildings and and adjoining hospitals in their several regions which were suitable for expansion, and plans for new hospital units were under consideration Local uthorities were making good progress in securing he necessary transport for ambulance work In London for instance, 1200 commercial vehicles had already been earmarked as ambulances and these were additional to the fleet of some 250 peace time mbulances controlled by the county council and to he 300 Green Line coaches provision for the mmediate conversion of which had already been made As regards personnel, the Minister said he was meeting a representative gathering of the medical profession n Feb 15 in order to discuss a scheme for allocating doctors as far as possible to the most suitable kinds f work in the event of war, full use being made of the egister compiled by the British Medical Association The Central Emergency Committee for Nursing ecently appointed had begun its work of registering nd organising reserves of nurses and nursing uxiliaries

Charitable Collections

On Feb 3 in the House of Commons Mr **CRAVEN-ELLIS**, in moving the second reading of the Charitable Collections (Regulation) Bill, said that the abuse f charity collections, which became very acute mmediately following the war had been dealt with o far as street collections were concerned by an Act of 1916 It was now desired that house to house ollections should come under similar control and egulation After the tightening up of the control f street collections many of those who had been busing that method of collection turned their ttention to house to house collection During the ast few years the number of collections from house o house had increased by from 400 to 500 per cent The present Bill which had the support of the great ational charities, provided that parties promoting charitable collection must apply to the police for licence Persons were prohibited from acting as ollectors on behalf of a promoter who did not hold licence, but with the authority of the police pplicants might obtain a certificate entitling them to carry out purely local charitable collections without a licence The Home Secretary would be empowered to give what was in effect an exemption to the great national charities from being called upon to apply for a licence Every collector would have to have a prescribed badge and a certificate Collecting in the name of charity had been the playground for a certain type of racketeer for too long —Sir **ADAM MAITLAND** took the view that the recognised voluntary hospitals should have the same right of exemption as the national charities —Mr **G LLOYD**, Under-Secretary, Home Office, said it was the intention of the Home Secretary to set up an advisory committee to advise him in regard to exemptions

He thought that clause 3 of the Bill included hospitals They did not want to interfere with legitimate collections

Veterinary Education

Sir **ARNOLD WILSON** asked the Minister of Agriculture whether he had considered the very serious condition of veterinary education disclosed in the report of the Inter-Departmental Committee on Veterinary Education published last September, and whether the urgent need for increased financial aid from the Exchequer disclosed in the report would be met by making the necessary provision in his department's estimates for the forthcoming year —Mr **W S MORRISON**, Chancellor of the Duchy of Lancaster replied that having regard to the far reaching nature of the committee's recommendations it had been thought desirable to seek the views of the institutions and professional bodies likely to be affected, but the report would receive most careful consideration In the meantime the maintenance grants were being increased in certain cases

Rating Relief for Hospitals

On Feb 3, in the House of Commons, Mr **H G WILLIAMS** moved the second reading of the Voluntary *Hospitals (Relief from Rating) Bill* He said that it was a little doubtful whether voluntary hospitals could properly be charged with rates, because the basis of valuation for rates was the rent which a willing tenant would give to a willing landlord, and he could not imagine anybody renting a hospital On the other hand since 1867 as a result of a judgment in another kind of case voluntary hospitals had in fact been rated except in one or two areas where the local authorities themselves had obtained powers not to rate them He was merely proposing in this Bill that the example set by the city of Glasgow and a Yorkshire borough should be generally followed The hon Member was still speaking when at 4 o clock the debate was automatically adjourned under the rules of the House

In the House of Commons on Feb 2 the Milk Industry Bill was withdrawn

QUESTION TIME

THURSDAY, FEB 2

The General Medical Council

Mr **GALLACHER** asked the Minister of Health whether he would consider legislation for the supersession of the General Medical Council and its replacement by a new body possessing the same powers but containing at least one half of directly elected medical practitioners and with an age limit for its members of 65 years, and whether he would take the requisite steps to set up a committee representative of all interests to consider and report upon the necessary steps to be taken to this end —Earl **WINTERTON** (Paymaster General) replied *Certain representations with regard to the General Medical Council have recently been made and are at present under consideration but I am not yet able to make any statement on the subject*

Protection of Water-supplies

Mr **GALLACHER** asked the Minister of Health if any steps had yet been taken to ensure that men engaged on water supplies were not germ carriers and to provide proper hygienic arrangements for all men engaged on such work —Mr. ELLIOT replied. A memorandum on this subject was issued to all water undertakers on Jan 30.

Silicosis

Mr ELLIS SMITH asked the Paymaster-General, as representing the Lord President of the Council, if the inquiry being made into questions that had arisen from silicosis, and being carried out by the Industrial Pulmonary Diseases Committee, included the pottery industry and any other industries —Earl WINTERTON replied. Various investigations are being made under the direction of the industrial pulmonary diseases committee of the Medical Research Council in addition to the special inquiry into chronic pulmonary disease among coalminers These include laboratory researches into the problem of silicosis generally Inquiries have also been made regarding silicosis in particular occupations, including pottery work, stone cutting, and lead mining, and reports have been published

In reply to a further question Earl WINTERTON said the urgency of the matter was fully realised and the work was being pressed forward with all possible speed

Campaign against Rheumatism

Mr DAVID ADAMS asked the Minister of Health whether, with a view to raising the health standards of the population, he had considered the necessity of instituting a national campaign against the widespread disease of rheumatism —Mr ELLIOT replied: In view of the activity of the Empire Rheumatism Council and other bodies, I am not satisfied that the present time is opportune for a campaign of the kind suggested.

MONDAY, FEB 6

Attested Herds in Carmarthen

Mr. HOPKIN asked the Minister of Agriculture how many attested herds there were in the county of Carmarthen up to date, how many herds were waiting to be tested, what was the cause of the delay in testing, for what length of time was testing suspended, and was he satisfied that the number of veterinary staff was sufficient to cope with the farmers' demands for testing their herds —Mr. RAMSBOTHAM replied. There are 1419 attested herds in the county of Carmarthen, 333 herds awaiting official test and 370 herds undergoing assisted tests While in certain cases more than the minimum period of 60 days after the last assisted test carried out by the owner's veterinary surgeon may elapse before the official test is made, generally speaking there is no considerable delay nor has there been any suspension of this work The veterinary staff in the county has recently been augmented, and my right hon. friend is satisfied that, subject to the occasional necessity for diverting certain of the veterinary inspectors to other duties of exceptional urgency for short periods, the staff engaged in the testing of herds is sufficient The position is, however, being kept under constant review.

Drugs for Insured Persons

Mr. THORNE asked the Minister of Health whether panel doctors were expected, and permitted under the regulations, to supply any drug they wished to panel patients —Mr. BERNAYS, parliamentary secretary to the Ministry of Health, replied: Insurance practitioners are required by their terms of service to order any drugs which are necessary for the adequate treatment of their patients.

Health Certificate for Naturalised Aliens?

Mr. HALL-CAINE asked the Home Secretary whether, in view of the increased number of persons now receiving British nationality, he would consider the desirability of making an additional condition that such nationality could only be granted if the applicant could provide a medical certificate to show that he was in reasonably good health and free from hereditary disease.—Mr. GEOFFREY LLOYD, under-secretary, Home Office, replied: No, Sir. My right hon friend does not think he would be justified in imposing such a condition.

Reconditioning Centres

Sir RALPH GLYN asked the Minister of Labour how many men had taken advantage of the various reconditioning centres during the last 12 months; how many of these centres were in operation, and whether any new centres were to be opened in the special areas in order to enable young men on unemployment relief to fit themselves if they so wished, to join the services after qualifying the necessary medical and physical standards —Mr ERNEST BROWN replied During the year ended Dec. last 26,352 men were admitted to training at Min of Labour instructional centres, summer camps and training centres There were in operation 25 instructi centres, 10 camps during the summer, and 4 trai centres A fifth training centre has recently been ope These centres are all situated in special areas I proposed to open a new local centre at Carfin in t Scottish special area The object of all these centres to help men, particularly men in the special areas a other areas of heavy unemployment, to fit themsel for employment

Disabled Ex-Service Men

Sir ARNOLD WILSON asked the Minister of Labour h many ex-Service men were registered as wholly un ployed at the last convenient date; and how many them in employment or unemployed were 50 per or more disabled, or had lost a limb —Mr ERNEST B replied: As regards ex-Service men generally, no is available since May 9, 1938, when the number reco as wholly unemployed was 267,893 The numb disabled ex-Service men registered as wholly unemp on the latest available date (Jan 9, 1939) was 27, Statistics of percentage disability are not available, of the 27,707 unemployed disabled men 12,183 persons whose disability would prevent them returning to their usual occupations but would them from employment under ordinary commercial conditions on what might be described light job, and 244 were persons whose disability it difficult for them to be employed under industrial or commercial conditions except in some tion specially designed for men suffering from occupational disability.

TUESDAY, FEB 7

Emergency Hospitals in War-time

Sir GIFFORD FOX asked the Secretary of State for how many offers his department had received of b for emergency hospitals in time of war, how many such premises had been inspected by his department, what percentage of the offers, as a whole, had definitely accepted and refused, respectively —Mr HOR BELISHA replied: 131 offers of buildings for use as em gency hospitals in war have been received by the W Office, several of which seem likely to be suitable army purposes To date, two of these buildings have b inspected None have been definitely accepted or refused pending consultation with other interested departments It will be borne in mind that we already have b Regular and Territorial military hospitals.

Hospital Services on Tyneside

Sir ARNOLD WILSON asked the Minister of Hea whether he could make any further statement as to t action contemplated on the report of the Royal Co mission on Local Government in the Tyneside Ar Cmd 5402, 1937 —Mr ELLIOT replied: I und that discussions between the Northumberland co council and the Newcastle and Tynemouth county bor councils with regard to the coördination of hos services are taking place I do not think that any a can at present be usefully taken by my department.

Midwifery in Scotland

Mr. MATHERS asked the Secretary of State for Scot the number of midwives employed under the 1 Maternity Services Act directly by local autho through voluntary organisations, and by arrange with those in private practice, respectively; and for the percentage of births in Scotland attended by wives, and the percentage in which medical assis was required by the midwife —Mr COLVILLE rep No midwives are as yet engaged in service under t Maternity Services (Scotland) Act, 1937 Of the births notified in Scotland during 1937 the perce attended by private midwives was approximately Medical assistance was required by midwives in app mately 8 per cent. of the total births, equival 33 per cent of the births attended by midwives

OBITUARY

JOSEPH LEWIN PAYNE

O.B.E., M.R.C.S. L.D.S.

Ir Lewin Payne consulting dental surgeon to y's Hospital died suddenly on Jan 31 at the of 67 He was born in London, the son of lliam Payne of the Guildhall, and was educated the City of London School and at Guy's Hospital. took his L D S in 1895 and qualified in medicine 1899 After being lecturer in dental mechanics at Guy's dental school and assistant dental surgeon, became full dental surgeon at Guy's in 1904 was a dentist of great ability and was keenly interested in the scientific aspects of dentistry Many generations of students will remember his skill as a teacher and his fairness and kindliness as an examiner to the Royal College of Surgeons and the universities of Leeds and Birmingham Lewin Payne was an active member of the British Dental Association and president of its metropolitan branch He had also been president of the odonto-ıcal section of the Royal Society of Medicine and the British Society for the Study of Orthodontics was a sound pathologist and the monograph on ontomes which he wrote in 1914 with Douglas bell and Warwick James ranks with Bland-tton's classic work. Their classification has been cepted as the basis for all subsequent research on ese elusive tumours No one ever heard Lewin yne say an unkind word of others He was a al friend and colleague and a man of simple and affected piety

[Elliott and Fry

In 1900 Mr Lewin Payne married Mary, the daughter Charles Deny, and he leaves a widow and one son

ROBERT COCHRANE BUIST

M A ST AND, B A CAMB, M D EDIN, LL D

THE death of Dr Buist of Dundee on Sunday st ends a life of unusual vigour and influence a veteran of 78 he was still young in mind and ll of interests and he did much besides the medical ork in which he was engaged for fifty years

A son of Thomas P Buist he was born in 1860 the city where his life was mostly spent From e High School he passed to St Andrews University d from St Andrews to Cambridge as a senior holar of Corpus Christi For his medical studies went to Edinburgh, where he graduated in 1888; d here he not only maintained himself by teaching ut founded the *Student*—which he carried on unaided r two years—and was junior president of the udents' representative council At the jubilee lebrations of 1934 Buist's services to the student fe of Edinburgh were recognised by his being made LL.D., an honour which he had received from St Andrews two years before

After a short time in Vienna where he concentrated on gynæcology and obstetrics he started practice in Dundee, where in due course he joined the gynæcological staff of the Royal Infirmary also lecturing on the subject in St Andrews University His local activities became very numerous apart from strictly medical appointments he was at various times member of the health insurance committee, chairman of the medical benefit committee president of the Dundee German Circle a founder of the Dundee Symposium and of the Citizens' Association and chairman of directors of the Dundee Crematorium But his range was also wider He was a member of the Scottish committee of the British Medical Association from 1904 onwards, and was elected a vice-president of the association, he was formerly chairman of the Central Midwives Board for Scotland, and he served on the Royal Commission on Voluntary Hospitals and the Scottish Departmental Committee on Hospital Services.

A junior colleague at the Royal Infirmary writes 'In a sense, he still led us, his keen brain and penetrating thoughts were greatly valued at our staff meetings which he seldom failed to attend and at those happy meetings when the staff of Hospital and of the University College met socially His wit, culture, and enterprise forced us to cast aside our cares and acquire from him some of his youth Latterly his professional work had mainly been carried out at Maryfield Hospital where, until the last few months, he had been consulting obstetrician and gynæcologist His activity was remarkable he invariably walked to and from the hospital, a distance of two or three miles when going to operate His tall figure going briskly along the street made one realise that old age sometimes comes alone, here was a man old in years but young in spirit and physique" He seldom wore an overcoat, and had been a vegetarian—at first on humanitarian grounds, but later for reasons of health—since 1887 In early days he was a notable cross country runner

In his leisure hours Buist translated German poetry into the "Doric," and wrote much original verse both in English and Scots Politically he inclined to the Left and he was president of the university Socialist group in Dundee and district At the end of his life he was taking part in the movement for sending food and medical supplies to Spain and for the care of refugees

Dr Buist's wife, a daughter of William Mackenzie, of Carron, Strathspey, died a few years ago. His son is a major in the Royal Army Medical Corps, and his two daughters are married His surviving brother, W H Buist, was formerly lord provost of Dundee

THE LATE PROFESSOR WOOLLARD

Mr J B Gurney-Smith writes: "As an old pupil of Prof Woollard's at Bart's may I pay my tribute to him? In common with numerous other students, I stand and salute a great teacher, a great administrator, and a great personality His anatomy department at Bart's was faultlessly run and all connected with it—demonstrators, students and the dissecting room attendants—were alike inspired by the flame of professorial authority The new Charterhouse department is his living memorial

"His lectures were a delight both from aspect of gaining knowledge and from the hu aspect also. He had a wonderful command of English and his billowing and rhythmic cadence still lives in one's memory. Who was not impressed as he heard the recital of the wanderings of the vagus nerve, or the distribution of tracts in the cord? The relation of anatomy to medicine was apparent

"His forceful personality made a deep impression. He was never one with whom to trifle or who suffered fools gladly, but the interests of his students he had much at heart and even if one had little intimate contact with him one felt he was interested just the same. His knowledge of literature and affairs was evident in his teaching and his philosophical asides were profound and pungent. Students have lost an inspiring leader and members of the profession an inspiring colleague"

Dr. GILBERT RICHARDSON, who died in London on Feb 6 at the age of 86, was born at Nelson, New Zealand, son of Ralph Richardson, J.P, D.L., Greenfield Hall, Flint He was educated at Ma borough, Adelaide, Downing College, Cambr St George's Hospital and Trinity College, Dub taking his medical degree at Dublin in 1870, and M.R C P three years later After resident app ments at the Metropolitan and Bethlem hospitals h settled in Putney where he remained in prac throughout his life. His active and inquiring mi led him in early years to contribute to med journals on many subjects, among them infa scurvy, the heredity of phthisis, the management the third stage of labour, and the use of sulph as a hypnotic. Later he became president of t South-West London Medical Society and was on t council of the Irish Medical Schools and Gradua Association. He was an advocate of the value outdoor pursuits and made some mark himself cricket, rowing and yacht racing He married t second daughter of Lieut -Colonel Hammond

MEDICAL NEWS

University of Cambridge

On Feb. 3 the following degrees were conferred:—

M B, B Chir—B E Miles, J S Phillpotts, H. St C. C. Addis, and D. O. Walker.

Royal College of Physicians of London

The following lectures will be delivered at the college, Pall Mall East, S.W.1, on Tuesdays and Thursdays at 5 P M on Feb 23 and 28, Dr. Donald Stewart, industrial incapacity and modern medicine (Milroy lectures), on March 2, 7, and 9, Dr H P Himsworth, diabetes mellitus (Goulstonian lectures); on March 14 and 16, Prof. W. W D Thomson, primary carcinoma of the lung (Lumleian lectures), on March 21 and 23, Prof J A Gunn, the pharmacological actions and therapeutic uses of some compounds related to adrenaline (Oliver-Sharpey lectures); and Prof J A Ryle, visceral neuroses (Croonian lectures) Members of the medical profession will be admitted on presentation of their card

Scottish Conjoint Board

At recent examinations by the board of the Royal Colleges of Physicians and Surgeons of Edinburgh and the Royal Faculty of Physicians and Surgeons of Glasgow the following candidates were successful.—

Frances A M Aldridge, M H Awwad, J M Bailey, H J Berger, Alexander Binnie, C F Campbell, F J Carter, Samuel Citron, J C Dick, Philip Dinner, Mostafa Farid, W M Fernando, Gavin Fleming, William Forsyth, W E Foy, Benjamin Geneen, A H Germaine, Isaac Gottlieb, Michel Kolta, R E Lindsay, I F Logan, Chong-Leng Lo, C E Meade, N A Messih, C E Miller, R D Mishkin, D C Moir, C S P Peiris, Alexander Robertson, Arthur Rubin, David Salamon, C A Samuels, R S Sanderson, B C Sen, Emanuel Snell, L J Spitz, L G Starr, William Tannock, Dorando Valerio, and J A Watson-Joe

The following graduates of recognised foreign universities were also admitted licentiates:—

Liesel Appel, Jancsi Brody, J C Hayward, Moritz Herzberg, Hermann Kaufmann, Fritz Lachs, and Geza Szanto

Maternity and Child Welfare Conference

A national conference on maternity and child welfare will be held at B M A house, Tavistock Square, London, W C 1, from June 27 to 29, under the presidency of Mr. Walter Elliot. The general question underlying the discussions at the conference is to be the needs and problems of parenthood, and the following subjects are included on the programme: safety in childbirth for mother and child, the encouragement of breast-feeding; the nursery school, the nursery class, and the day nursery, the child in relation to the foster-mother and the daily minder; problems of parents with a physically defective child, propaganda in the maternity and child-welfare movement. A clinical course for medical practitioners will be held on June 25 and 26. Further information may be had from the secretary of the National Association of Maternity and Child Welfare Centres and for the Prevention of Infant Mortality, Carnegie House, 117, Piccadilly, W 1.

Society of Apothecaries of London

Dr. Evan Bedford will deliver the second Jos Strickland Goodall lecture in the hall of this soc Water Lane, E C 4, on Wednesday, March 29, at 9 P.M He will speak on left ventricular failure Members of th medical profession are invited to attend

University of Liverpool

Dr. Leslie Cunningham has been appointed lecture clinical medicine in the university.

Gresham College

Dr V S Hodson will give four lectures on phys this college, Basinghall Street, London, E.C 2, fro Feb 14 to 17, at 6 P M His subject will be mod discoverers and their discoveries. Admission free.

Fellowship of Medicine Debate

On Friday, March 24, at 8 30 P M, in the botan theatre of University College, Gower Street, Lond W C 1, Mr Somerville Hastings will move that th institution of a whole-time state medical service would b in the interests of the nation's health The motion will b seconded by Dr D Stark Murray, and it will be oppos by Sir Henry Brackenbury and Dr. Frank Gray. Appli tions for tickets should be made to the fellows 1, Wimpole Street, W 1.

Congress on Brucella Infections

The federation of medical societies of North Africa a *holding their annual congress* at Oran on April 3, 4, and under the presidency of Dr Jasseron. Discussions will b held dealing with aspects of the problem of bruce infections in North Africa Further information may b had from the secretary-general of the congress, Dr. Re Solal, 16, Boulevard Maréchal Joffre, Oran, Algeria

Gifts to Hospitals

St. Mary's Hospital, London, has accepted a large h with 7 reception-rooms and 36 bedrooms and 30 acres of garden at Nettlebed, which was offered to t hospital by the family of the late Mrs Robert F for use as a convalescent home for patients Contribu for the maintenance of the house, including one of £ a year for seven years from Lord Nuffield, have b made, and the home will be ready to receive about patients early in 1940

The British Hospital for Mothers and Babies, Wool has received an anonymous gift of £10,000 towards building extension fund A condition has been made part of the money shall be used to found a ward unmarried mothers

The Birmingham United Hospital has received a of £5000 from Mr. Frank Barnes, consulting surgeon to hospital. The money is to be used to dedicate a f bedded ward at the new Centre Hospital in memory of mother, brother and sisters.

stitute of British Surgical Technicians

On Friday, Feb 17 at 8 15 P M, at the Welbeck Hotel, elbeck Street, London, W 1, Mr T Pomfret Kilner will liver a lecture on plastic and reconstructive surgery will be illustrated by slides and a film Members of the dical profession may obtain tickets from the secretary the institute, 6, Holborn Viaduct, E C 1

rth-rates in Soviet Russia

The Soviet newspaper *Pravda* states that in 1937 the th rate in the U S S R was 18–19 per cent higher than 1936 The increase of population in 1937 (according provisional figures) was a little more than 2 per cent ring the first ten months of 1938 there were 100,000 re marriages in the Soviet Union than in the corre- onding period of 1937 The number of divorces in 1937 d declined by 47 per cent as compared with 1936

ottish Advisory Committee on Cancer

The Secretary of State for Scotland announces the pointment of a committee to review existing facilities r the diagnosis and treatment of cancer, to recommend velopments, and to examine means of coöperation tween local authorities The chairman is Mr W J uart, F R C S E, and the members Dr G B Fleming, r H L F Fraser, Dr A S M Macgregor, Mr David obertson, and Mr J J M Shaw, F R C S E, with r A J Purves, of the Department of Health for otland, as secretary

ritish Postgraduate Medical School

On Feb 8 Prof E C Dodds gave the first of six ekly lectures on hormones in relation to medicine and thology Dr S Levy Simpson will give the first of other series of six weekly lectures on Feb 14 He will eak on diseases of the endocrine glands Both these ries of lectures will be at 4 30 P M Mr C Price Thomas ll give three lectures on empyema and abscess of the ng on Feb 17, 24, and March 3, at 2 30 P M, and Mr tanford Cade will lecture on radium on March 10, 17, nd 24, at 2 30 P M Applications for tickets should made to the dean of the school, Ducane Road, ondon, W 12

A special course of lectures on the treatment of war ounds and air raid casualties, which is primarily intended r surgeons, will be held at the school from March 6 24 at 5 30 P M The series will be introduced by olonel J M Weddell, who will give a general survey of ar injuries and medical arrangements Other speakers ll include Colonel E M Cowell (who will discuss the eneral scheme for dealing with wounded, the prevention nd treatment of shock, and preparation for transport), r Janet Vaughan (blood transfusion), Mr G Gordon aylor (general principles in the treatment of wounds the lassification of cases and wounds of the abdomen and enito urinary system), Prof G L Gask (wounds of the hest), Mr St J D Buxton (injuries of the lower limb) r C H Frankau (injuries of the upper limb and joint njuries), Mr P H Mitchiner (injuries to nerves and essels), Mr C Max Page (amputations), and Mr G efferson (head injuries) Dr A I Tudor Hart will also escribe his recent experiences in the war in Spain, and lecture on common infections of wounds is also included n the programme Further information may be had rom the dean

afeguarding of Water-supplies

A memorandum (No 221) setting out the precautions necessary in the day to-day administration of a water upply has been sent by the Minister of Health to all ater undertakings, including both local authorities and ompanies Emphasis is laid on the need for care in the election of workmen employed on any works where there risk of conveying infection to the water the clinical istory of each workman, particularly with regard to nteric infection should be thoroughly investigated and very new workman employed where there is risk of con aminating the water should be examined to ascertain hether he is likely to be a typhoid carrier Regular nspection of gathering-grounds and rivers is recommended, and the protection of bore holes from pollution s discussed; inspections, if necessary over an area of at east two miles of the site of the well, and particular attention to any cesspools or soakaways in the area, are advised Where water is being supplied without treatment the undertakers should make frequent and regular analyses of the water But the safeguarding of water-supply by special treatment such as chlorination likewise demands great care "There is often a tendency," says the memorandum, "to think that, provided arrangements are made for chlorination, safety is secured whatever the condition of the raw water It cannot be sufficiently stressed that a policy of reliance on a single line of defence between the consumer and a polluted source of water supply is fraught with danger Not only should every effort be made, as has been suggested above, to keep the source as free as possible from pollution, but wherever practicable the method of treatment should be such as to provide at least two lines of defence such as, for example, chlorination, or other effective form of sterilisation, after storage or filtration"

Medical Diary

Feb 13 to Feb 18

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole Street, W 1

TUESDAY

Therapeutics and Pharmacology 5 P M Miss E M Widdowson Hæmoglobin Levels and Iron Administration Dr W W Payne Plasma Phosphates in Catarrhal Jaundice Dr Janet Vaughan and Dr H S Saxton Stored Blood for Transfusion

Psychiatry 8 30 P M Dr Ian Skottowe Shock Therapy a Plea for Proportion in Psychiatry Dr J Brander will also speak

THURSDAY

Dermatology 5 P M (cases at 4 P M) Dr H MacCormac (1) Schaumann's Disease (2) Sarcoid followed by Lupus Erythematosus Dr B W Hunt (3) Facial Hemiatrophy and Scleroderma Dr P B Mumford Emulsifying Bases

Neurology 8 30 P M clinical meeting at the National Hospital Queen Square, W C 1

FRIDAY

Physical Medicine 4 30 P M, Dr J H Kellgren. Sciatic Pain Dr C W Buckley will also speak

Obstetrics and Gynæcology 8 P M Mr James Wyatt Endometrioma of the Ovary (2) Pseudohermaphroditism (3) Granulosa Cell Tumour in a Child Dr Moore White (1) Granulosa Cell Tumour in a Girl Mr S Gordon Luker (1) Radium Treatment of Menopausal Hæmorrhage followed by Carcinoma of the Body of the Uterus Three Years Later Mr Leslie Williams (1) Bilateral Myoma of Corpora Cavernosa

Radiology 8 30 P M Dr Peter Kerley Radiology of Acute Respiratory Diseases

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, Manson House, 26, Portland Place, W 1

THURSDAY—8 15 P M, Dr C Wilcocks Tuberculosis in Natives of Tropical and Subtropical Regions Dr H Harold Scott will also speak

MEDICAL SOCIETY OF LONDON, 11 Chandos Street, W 1

MONDAY—8 30 P M, Sir Arthur Hurst and Dr H L Glyn Hughes Use and Abuse of Purgatives

NORTH LONDON MEDICAL AND CHIRURGICAL SOCIETY

WEDNESDAY—9 P M (Royal Northern Hospital Holloway Road N 7) surgical clinical evening

PADDINGTON MEDICAL SOCIETY

TUESDAY—9 P M (Great Western Royal Hotel Paddington, W 2) Dr Charles Brook Socialised Medical Services

TUBERCULOSIS ASSOCIATION

FRIDAY—3 10 P M (26, Portland Place W 1) general meeting Mr James Carver Genito urinary Tuberculosis 5 10 P M Dr Basil Roberts Cadmium in the Treatment of Pulmonary Tuberculosis Dr Philip Ellman Healing by Natural Resolution in Pulmonary Tuberculosis with or without Cavitation Mr G J King Turner The Teeth as Indicators in Pulmonary Tuberculosis Mrs White Physical Treatment in Modern Thoracic Surgery

BRITISH ASSOCIATION OF RADIOLOGISTS, 32 Welbeck Street W 1

FRIDAY—3 30 P M Prof P Lamarque (Montpellier) (a) Diffuse Skeletal Metastasis in Cancer of the Breast (b) Some Results of Historadiography (Skinner lecture)

BRITISH INSTITUTE OF RADIOLOGY, 32, Welbeck Street W 1

THURSDAY—8 P M Mr J J Roberts Ph D Protective Materials in the Use of Radium Surface Applicators. Mr D I A Jones Method of Checking the [illegible] in X ray Therapy Mr A C [illegible] Central Tube Design

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS, Lincoln's Inn Fields

TUESDAY—4 P M Mr Sampson Handley Makers of John Hunter (Hunterian oration)

UNIVERSITY OF LONDON
Tuesday —5 P M (University College, W C 1), Mr R J Ludford, D Sc . Recent Advances in Normal and Malignant Cellular Growth (First of three lectures)
Thursday and Friday —5 30 P M (St Bartholomew's Hospital, E C 1), Prof E R Flint · Pre- and Post-operative Management of Surgical Cases

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane Road, W 12
Tuesday —4 30 P M , Dr S Levy Simpson : Diseases of Endocrine Glands
Wednesday —Noon, clinical and pathological conference (medical) 2 P M , Prof J H Dible Tissue Reactions in Histological Diagnosis 3 P M , clinical and pathological conference (surgical) 4 30 P M , Prof E C Dodds Hormones in Relation to Médicine and Pathology
Thursday —2 15 P M , Dr Duncan White · radiological demonstration. 3 30 P M , Dr J R Minnitt . Analgesia and Anæsthesia in Obstetrics
Friday —2 P M , clinical and pathological conference (obstetrics and gynæcology) 2 30 P M , Mr C Price Thomas : Empyema and Abscess of the Lung
Daily, 10 A.M to 4 P M , medical clinics, surgical clinics and operations, obstetrical and gynæcological clinics and operations

ST GEORGE'S HOSPITAL, S W 1
Thursday —5 P.M , Dr Anthony Feiling neurological demonstration

WESTMINSTER HOSPITAL, Horseferry Road, S W 1
Tuesday —5 P M , Dr Arnold Stott Congestive Heart Failure Mr, Rock Carling Graves's Disease

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W C 1
Thursday —2 P M , Dr Robert Frew : Enuresis 3 P M , Dr. W W Payne : Examination of Renal Function
Outpatient clinics daily at 10 A.M and ward visits at 2 P M

NATIONAL HOSPITAL, Queen Square, W C 1
Monday —3 30 P M , Dr Hinds Howell · Acute Myelitis
Tuesday —3 30 P M , Dr. Purdon Martin Neurosyphilis (3)
Wednesday —3.30 P.M , Dr. F. M R Walshe Clinical demonstration
Thursday —3 30 P M , Mr. G Jefferson : Head Injuries (1)
Friday —3 30 P M , Dr. E A Carmichael . Deficiency Diseases (1)
Outpatient clinic daily at 2 P.M

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL, N W 3
Wednesday —4 P M , Dr H M Oddy Jaundice

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn Road, W C 1
Friday —4 P M , Mr Archer Ryland demonstration of museum specimens

TAVISTOCK CLINIC, Malet Place, W C 1
Monday —4 30 P M , Dr. H V Dicks . Sex Perversions
Thursday —4 30 P M , Dr T W Mitchell Theory of the Neuroses

ST JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE, Ranelagh Road, S W 1
Friday —3 30 P.M , Dr Albert Eidinow Immunological Methods of Treatment in the Rheumatic Diseases

LONDON SCHOOL OF DERMATOLOGY, 5 Lisle Street, W C 2
Tuesday —5 P M , Dr H Corsi . Diseases of the Nails
Wednesday —5 P M , Dr I Muende Histopathology of some Common Skin Diseases (Chesterfield lectures)

FELLOWSHIP OF MEDICINE AND POSTGRADUATE MEDICAL ASSOCIATION, 1, Wimpole Street, W 1
Monday to Saturday.—Medical Society of London, 11, Chandos Street, W 1, Mon , Wed , and Fri , 5 15 P M , primary F R C S physiology course —St John's Hospital, 5, Lisle Street, W C 2, afternoon course in dermatology (Open to non-members)

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION
Wednesday —4 P M (St James' Hospital, Ouseley Road, S W 12), Mr Rainsford Mowlem : Modern Methods in the Treatment of Soft Tissue Injuries

LEEDS GENERAL INFIRMARY.
Tuesday —3 30 P.M., Dr J T Ingram · demonstration of dermatological cases

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION
Wednesday —4 15 P M (Royal Hospital for Sick Children), Mr Matthew White : Affections of the Hip Joint in Children

Appointments

Belsey, R H. R, M B Lond , F R C.S , surgical registrar and tutor at St Thomas's Hospital, London

Diamond, David, M R C P , D P H , deputy medical officer of health for the city and port of Hull

Ellis, Ronald, M D Camb , M R C P., hon assistant physician to the Royal Liverpool United Hospital, the David Lewis Northern Hospital branch

Ewen, J H., M R.C P E , D P M , medical superintendent at the Middlesex County Mental Hospital, Springfield , and psychiatrist to Westminster Hospital, London

Hay, Jannett C, M D Lpool, hon physician to the Royal Liverpool Babies' Hospital

Louden, Margaret C, M B Lond , F R C.S , surgical registrar at the South London Hospital for Women

Malcolm, J E., M B St And , casualty officer and surgical registrar at the King George Hospital, Ilford

Pereira, Arthur, M B Lond , F R C S , second aural to the Metropolitan Hospital, London.

Townsend, Eric, M.D Edin , D P H , assistant medical of health for Bournemouth

Woolmer, R F, B M Oxfd, D A , hon anæsthetist to Woolwich and District War Memorial Hospital

London County Council—The following announced A M O (I) or (II) = assistant medical (class I) or (class II) .—
Grant, C L, M D Edin , M R C P E , A M O (I),
Jones, A D W, M B Lond , F R C S , A M O (I), Abbots ,
Dunkley, E W, M B Lond , A.M O (II), St the-East ;
Harland, J C, M B Lond , A M O (II), Hackney ,
Pope, Dorothy S, M B Lond , A.M O (II), Lambeth ,
Stevenson, C R, M B N Z , A M O (II), Colindale ,
Smith, D W G, M B Edin , M.R C P , Senior A.M O Paddington ,
Smallwood, A L, M B Lpool, D C H., D P H , A.M.O Colindale ,
Thompson, N. J W., M.B Belf , A M O (I), North and
Glennie, Cecily M, M B Aberd , D C H , A.M O Bethnal Green

Royal Sussex County Hospital, Brighton —The following ments are announced .—
Prowse, C Barrington, M B. Camb , M R.C.P., physician ,
McGregor, H G, M D. Lond , M R C P , hon. physician , and
Brooke, Ralph, M S Lond , F R C S , hon surgeon

Examining Surgeon under the Factories Act, 1937 Dr J C Bird (Usk district, Monmouth).

Births, Marriages, and Deaths

BIRTHS

Buxton —On Jan 31, the wife of Dr K L. Buxton, of —a son
Elkington —On Feb 6, at Malvern, the wife of Dr Elkington—a son
Flack.—On Feb 8, 1939, to Isabel, wife of Dr I. Harvey —a son, Robert Harvey Graham
Garnham —On Feb 1, at Kisuma, Kenya, the wife of P C C Garnham—a daughter
Grey —On Jan 31, the wife of Dr J C P. Grey, Muar, —a daughter
Havard —On Feb 5, at Oxford, the wife of Dr R Havard—a son
Henderson —On Feb 2, at Atbara, Sudan, the wife of L H Henderson—a daughter
Hope Scott —On Feb 6, at Grosmont, near Hereford, wife of Dr Graham Hope Scott—a son.
McNeil.—On Feb 6, at Allahabad, the wife of Capt McNeil, R A M C —a daughter
Maurice —On Feb 2, at Bude, the wife of Dr Maurice—a daughter
Simon —On Feb 6, at Bentinck Street, W 1, the wife George Simon—a son
Watling —On Feb 6, the wife of Dr John Watling, New Barnet—a son.

MARRIAGES

Dain—Hague —On Feb 1, at Chudleigh, Devon, Harry Dain, M B , to Alice Muriel Hague
Enraght—Beseke —On Feb 4, William Enraght, M.R.C to Maud Beseke

DEATHS

Bruce —On Jan 23, at Vereeniging, Transvaal, S Edna Winifred Bruce, M B Glasg
Buist —On Feb 5, at Dundee, Robert Cochrane Buist, LL D. M R C P.E , aged 81
Cuff —On Jan 31, at Scarborough, Robert Cuff, M B aged 91
Daunt —On Feb 6, in London, Francis Eldon Daunt, L R C P I , L R C S E
Gaunt —On Feb 1, at Alvechurch, John Penn Gaunt, M.R.C aged 78
Miley —On Feb 3, at St Mary Bourne, Hants, Miles M B Camb , aged 82
Payne —On Jan 31, at Portland Place, W 1, Joseph Payne, O.B E , M R C S , L D S , aged 67
Richardson —On Feb 6, Gilbert Richardson, M D M R C.P , of Elsworthy Terrace, N W 3
Walker.—On Feb 4, at Gillingham, Dorset, Arthur D S O , M B Camb , aged 60

N B —A fee of 7s 6d is charged for the insertion of Births, Marriages, and Deaths

The Index and Title-page to Vol. II, 1938, was completed with the issue of Dec 31, ready. A copy will be sent gratis to subscribers receipt of a postcard addressed to the Manager The Lancet, 7, Adam Street, Adelphi, W C.2 scribers who have not already indicated their to receive indexes regularly as published should so now.

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itish Postgraduate cane Road, W 12 —Two
cas O 's each at rate of £150
nterbury, Kent and Canterbury Hosp —H.S to spec depts at rate of £125
rdiff City Mental Hosp , Whitchurch —H P at rate of £200
aring Cross Hosp , W C —Surg reg £[illegible]
orley and District Hosp —H S at rate of £150
lchester, Severalls Mental Hosp —First asst M O , £875
nnaught Hosp E —Hon physician
nesbury and District General Infirmary —Second H S , £150
rchester Dorset County Hosp —H S , at rate of £150
ver Royal Victoria Hosp —Second A M O £140
eadnought Hosp , Greenwich S E 10 —Physician with charge of outpatients Also hon dermatologist
dley Guest Hosp —Res surg O £250–£300 Also H S , £150
ndee Royal Infirmary —Hon asst visiting obstet and gynæcologist
st Ham Memorial Hosp , Shrewsbury Road, E 7 —H P , at rate of £150
linburgh City and Royal Burgh —Depute M O H £900
izabeth Garrett Anderson Hosp Euston Road, N W 1 —Hon asst to ear, nose, and throat dept
eter, Wonford House.—Asst M O £350
asgow Western Infirmary —Asst radiologist £100
lifax County Borough —Asst M O H —maternity and child welfare, £500
mpstead Health Babies Club 99 Hampstead Way N W 11 —Practitioner for clinic 1½ guineas
ywards Heath, King Edward VII Memorial [illegible] Hosp —Hon surgeon
osp for Consumption and Diseases of the Chest, Brompton, S W 3 —Med reg £150
osp for Sick Children Great Ormond Street, W C 1 —Res med asst and clin pathologist £125
ounslow Hosp , Middlesex —Anæsthetist, £1 1s per session
ore General Hosp —Jun res M O £120
ull Beverley Road Institution.—Asst M O £350
ull City Mental Hosp , Willerby —Second asst. M O £500
fants Hosp Vincent Square, Westminster S W.—H.P , at rate of £100
leworth, West Middlesex County Hosp —Visiting ear, nose, and throat surgeon 3 guineas per session
eds University School of Medicine —Reader in medicine £600
icester Royal Infirmary —Two res anæsthetists each at rate of £150 Also H.P s , H.S 's , and Cas O s, each at rate of £125
ondon County Council —Asst M O s (class 1), each £350 asst M O s (Class II) each £250 Also dental anæsthetist, £75
ondon Hosp E 1 —Asst. surgeon Also first asst to skin and light therapy dept £150
ondon Jewish Hosp , Stepney Green E 1 —Hon. surg reg. 60 guineas Also clin asst
ondon University —University chair of medicine at St Mary s Hosp medical school £2000 Also University chair of dental surgery and pathology at Royal Dental Hosp , £1500
anchester Ancoats Hosp —Two H S 's (one conjoint) each at rate of £100
anchester, Duchess of York Hosp for Babies —Jun res M O , at rate of £75
anchester Royal Infirmary —Chief asst. to neuro surgical Dept. £350
iddlesbrough Education Committee —Asst school M O £500
iddlesex County Council —Third asst M O for Middlesex Colony, Shenley, £305
iller General Hosp Greenwich Road S E 10 —H P and H.S each at rate of £100
ewport County Borough —Asst res M O , £350
orthampton General Hosp —Cas O , H.S and H P , each at rate of £150
orwich Norfolk and Norwich Hosp —H S , £120
ottingham City Council —Temporary physician £15 per week
ldham, Infectious Diseases Hosp —Asst M O H and res M O £350
ldham County Borough.—Asst school M O £[illegible]
ldham Royal Infirmary —H.P and S for special depts , at rate of £175
xford University —Graduate asst in dept of pathology at Radcliffe Infirmary, £251–£300
enshurst, Kent, Cassel Hosp for Functional Nervous Disorders Locum tenens 8 guineas a week
lymouth Prince of Wales s Hosp Greenbank Road —Res anæsthetist and H.S to spec depts at rate of £120 Also two H.S s, each at rate of £120
lymouth City —Asst M O H £[illegible]
ortsmouth City —Part time appointments
rince of Wales's General Hosp , N 15 —Jun H P and two Jun H.S s each at rate of £[illegible]
ueen Mary's Hosp for the East End, Stratford, E 15 —Res M O and Cas O each at rate of £150 H P and H.S each at rate of £110 Obstet H.S at rate of £110
Radium Institute and Mount Vernon Hosp 1, *Riding House Street, W* 1.—H.S for Northwood at rate of £150
Redhill County Hosp Surrey —Res asst M O at rate of £250
Rochester St Bartholomew s Hosp —H S , at rate of £150
Rotherham Hosp —H P £180
Royal Army Medical Corps, Whitehall S W 1 —Supplementary reserve of officers
Royal College of Surgeons.—Member of the court of examiners
Royal Masonic Hosp , Ravenscourt Park W 6 —Two res surg O's, each at rate of £250
Royal Naval Medical Service —M O s
Royal Tunbridge Wells Kent and Sussex Hosp —H.P , £150
St Albans and Mid Herts Hosp —Hon surgeon
St Helens County Borough —Asst M O H , £500
St Mary's Hosp for Women and Children Plaistow —Hon ophth surgeon Also hon. dermatologist for skin dept
St Marylebone Borough —M O H , £1350
Salford City —M O for Newchurch Homes, Culcheth £350
Sheffield, Children's Hosp —Hon ophth surgeon Also H P , at rate of £100
Stoke-on Trent City —Sen asst maternity and child welfare officer, £600
Surrey County Council —Deputy med supt £720
Swansea General and Eye Hosp —H P at rate of £150
Tancred's Studentships —Each £100
Victoria Hosp for Children, Tite Street, Chelsea S W 3 —Surgeon to outpatients Also hon surg reg
Walsall General Hosp —Res surg O , £300
Warwick King Edward VII Memorial Sanatorium Hertford Hill —First asst M O , £350 Also jun asst M O , at rate of £250
Woolwich and District War Memorial Hosp , Shooters Hill, S E 18.—Hon asst. surgeon and hon asst obstet surgeon Also H S , at rate of £100
Worcester County and City Mental Hosp , Powick —Asst. M O , £350
York Dispensary —Two res M O 's each £200

The Chief Inspector of Factories announces vacancies for Examining Factory Surgeons at Bishop s Waltham (Southampton), Dunbarton (Dunbarton), West Drayton (Middlesex)

PARENTS AND THE COMMON FEVERS

We have just received from Carnegie House whi er is the home of voluntary work for mother and chi he- a copy of a booklet entitled "To Mothers and Father ner This is the seventeenth edition and its 100,000 co ion bring the total number published up to more turely a million[1] The book we are told, lays no c to deal with all the difficulties which may arise i course of bringing up a young family, nor does it to replace the expert advice given by family or welfare centre It is just a useful guide faces in parents of young children in all stations of life sitate final chapter deals with infectious diseases and nical dangers, and as this book is evidently getting thro ons to its clientele in a remarkable manner it would to wise to bring this section into line with will best modern teaching Some of it is good bun the quarantine table requires revision, especiall h the periods of exclusion from school The note on measles is not quite accurate: its infectivity is bad enough without prolonging it for three weeks after the appearance of the rash or so long as there is any running from the ears, and it is a pity that nothing has been said about serum prophylaxis On the other hand the infectivity of the catarrhal stage of whooping-cough is not stressed enough The final paragraph on protective inoculation against diphtheria should be rewritten But this criticism of detail does not diminish our appreciation of the very real service to the health of the community rendered by the book

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[1] To Mothers and Fathers how to keep yourselves and your children well and strong Published by the National Association of Maternity and Child Welfare Centres and for the Prevention of Infant Mortality, 117 Piccadilly, London W 1 Pp 92 6d post free

MASKS AND NOSES —Dr John Mills writes "I take it that the use of masks by surgeons while operating is to prevent the breath and with the breath organisms from reaching the operation site I have noticed, however, that many surgeons wear the masks with the nose protruding over the top As the mouth is usually closed and breathing both in and out is almost always carried on through the nose, I fail to see how an operating mask can be useful if the nose is not properly covered."

NOTES, COMMENTS, AND ABSTRACTS

CRIMINAL ABORTION

A SUGGESTION FOR LESSENING ITS INCIDENCE

By JOAN MALLESON, M.B. Lond.

IT is well known that deliberate abortion causes a vast amount of maternal ill health. Although the immediate death-rate from the practice is small (some 13 per cent. of the total maternal mortality), among its sequelæ must be included many cases of permanent sterility as well as subsequent obstetrical complications, which often pass unrecognised as symptoms of previous interference This toll of maternal health is so highly detrimental to the individual and to the nation that any and every method of prophylaxis should be worth considering.

For obvious reasons it is the working-class mother, particularly the most ill-nourished, exhausted, and sick, who most readily resorts to criminal abortion and who takes the gravest risks to achieve it It is her health—already impaired—which is most often sacrificed It is mainly with her predicament that this article deals; for, paradoxically, where therapeutic abortion is most clearly indicated it is least readily obtained. Women of the upper and middle classes are generally not allowed to continue a regnancy which endangers life or subsequent health; it the working-class mother—on whose health the ll-being of the whole family depends—is often pelled to run such risks, since for her investigation relief are seldom accessible There is little doubt n certain pregnancies which should legitimately alt with by therapeutic abortion are, on account adequate assistance, often terminated by the n herself and in a manner calculated to produce reater physical disorder.

ublic health figures for 1937 show that in England rly 20 per cent and in Scotland nearly 30 per nt of the total maternal deaths were due to causes hich were "aggravated by childbearing." These leaths were due mainly to chronic respiratory, renal and cardiac disorders One cannot help wondering whether (in the unfortunate absence of contraceptive instruction) the wider application of therapeutic abortion would not have protected some of these mothers Further, even when death has not been caused, a vast increase of morbidity must result from repeated parturition among these sick mothers Statistics show that a large percentage of these labours have been fruitless, for the infant-death rate among such cases is extremely high.

It is not always easy to predict events early in pregnancy, but it is known that the dangers of childbirth in the normal, as well as in the sick woman are liable to be increased by malnutrition, exhaustion and multiparity. Yet these factors are, indeed, the very ones which most frequently drive a woman to criminal abortion Unfortunately, for this most needy section of the populace there is the least opportunity for obtaining expert opinion; nor indeed, as matters stand, is there much likelihood of getting pregnancy diagnosed until after the time that any indicated curettage could be favourably performed Clearly this state of affairs is lamentable.

Investigations suggest that there must be some 90,000 women in this country annually who resort to criminal abortion This is good enough reason, therefore, to consider facilities which might transfer some of these desperate mothers from the hands of the criminal abortionist into proper medical care. Similar measures might help others, by virtue of early diagnosis and sympathetic advice, to be dissuaded from seeking to terminate pregnancy at all.

Before outlining any possible measures, it wo be well to review the present position In class—particularly rural—practice it is for a pregnancy to be diagnosed by the until after the third month Most know a request for early diagnosis is seldom favoured. practitioner is anxious to hazard what can in ma cases be no more than a guess; nor is the prac of bimanual examination readily undertaken by practitioners Apart from frequent reluctance both patient and doctor, the time taken for disrob the towels, provision of gloves, all go to make its avoidance Since most women know also th abortion must be performed in the earliest week pregnancy, it follows that countless women under the dangers of abortion where no pregnancy and without having received any medical op whatsoever. The beliefs which still exist th menstruation can be "forced" by odd medicamen together with other fallacies of ignorance and super tion, flourish because the practitioner is excl from this side of family life A knowledge of physical dangers of abortion, as well as of the prop laxis of contraception, has no opportunity for ven tion Many people believe that they must *asking help in illness subsequent to abortion,* *the family doctor should disclose the case and* *disgrace or the law upon them* Hence a distract mother seeks the local abortionist—often a *woman and often (so she feels) her only* helpful Experience shows that such actions are comm undertaken from the highest motives—desire to ma tain the standard of food and space for the alr existing family, as well as to spare the sufferin the expected child for whom there is no adeq provision Yet it happens that, with the invalid or death of these mothers, the family disinteg completely; around their health and capacity tend the children the whole home revolves, therefore, viewed socially, these mothers are very last who should be permitted to jeopardise t well-being.

For the help and protection of such mothers following facility could be made—a provision b upon a public-health service which has recently introduced throughout Denmark. Occasional cli could be held in each district, to be known as "mot welfare centres." The officer in charge would need to be of consultant standing but should b experience in antenatal work and should be prov with facilities for obtaining Aschheim-Zondek t He—or she—should be in touch with local cons centres, where cases which might require therap abortion could be referred. In addition, the o might possess special experience in contrace work, in which event the clinic could take ov introduce such contraceptive work as is now perm under the Ministry of Health circular 1622 of 19 which service is still only provided by 245 of 414 local health authorities (Failure to give co ceptive advice "to those married women for w further pregnancy would be detrimental to hea must be directly responsible for a high morbidity abortion-rate The omission reflects most re tably upon these authorities.)

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The officer in charge would have good opportunity making contact with a woman who appeared xious about being pregnant, would discuss with the reason for her anxiety and bring to her notice dangers of inducing a "miscarriage" Officers the contraceptive clinics find frequently that it is ssible to dissuade women from abortion by holding t the assurance that they can later be taught able contraceptive methods Since the dangers criminal abortion could here be freely advertised d discussed, the work of the clinic would have high ucational as well as prophylactic value

(2) Patients would be referred for consideration to the advisability of therapeutic abortion They uld be those who had themselves approached the nily doctor for "help, or whom the practitioner garded as "borderline" cases because of their esent state of health or the history of their previous nfinements In every case the function of the icer would be purely diagnostic and administrative ving diagnosed pregnancy, he would assess the rious relevant clinical factors, if necessary obtaining ports of past confinements from all practitioners ncerned On such evidence he would decide on the validity of the patient's claim and then refer r for expert opinion His position would enable n to call upon local consultants for cardiac, renal, d pulmonary disorders, while he would be fully formed of the available accommodation in local spitals

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The establishment of such clinics should offer no eat difficulty or expense Local antenatal premises ould naturally be used and since patients could be expected to travel some distance for this service, one officer giving a weekly or fortnightly session should be able to cover very large areas[1]

The educational advantages of such clinics would probably spread rapidly among working class women The same women have benefited so greatly by the infant-welfare clinics that it is now rare to find a mother with no knowledge of modern principles One might hope that money spent on this service would be repaid by a lessening of the services dealing with septic abortion and gynæcological disorders, indirectly also the service might raise and not lower the birth rate, and particularly the survival rate, of both mother and child

Although by such means individual women would be deterred from embarking on the hazards of criminal abortion, the task of lessening the urge towards this practice rests with the economists, the politicians, and society as a whole No palliative can easily be found for persuading an elderly multipara with a grown up family to go through with an unwanted pregnancy, nor yet can any simple method be devised *for solving the problem which faces the pregnant* mother of a hungry and overcrowded family. In circumstances such as these the practitioner's part is the somewhat minor one of seeking to protect the health, in its truest sense, of the pregnant woman under his care, and, disinclined as he may be to consider her social status in relation to her pregnancy, he cannot with honesty play his part if he ignores those environmental factors which determine her chances of subsequent life and health A public-health service which would assist the practitioner in this task and help him in the making of a decision which may be complex and onerous, should surely be welcome

THE BARE MINIMUM

EVEN in Europe there are today circumstances in which the shortage of foodstuffs may necessitate emergency measures against famine The technical committee on nutrition of the League of Nations Health Organisation has thought it advisable to suggest means of supplying a bare minimum that will support life In the *Bulletin* of the organisation (1938, 7, 666) the committee propose a basis which can be modified according to local circumstances The diets put forward in the following schedule, while extremely simple and inexpensive, are nevertheless not grossly inadequate from the physiological standpoint

The *first scheme* is arranged on the basis that a sufficient supply of dry skimmed milk powder is available The daily ration is as follows —

Growing children		*Adults*	
Whole wheat	5 parts	Whole wheat	12 parts
Skimmed milk powder	1 part	**Skimmed milk** powder	1 part
Cod liver oil	5 g daily	Cod liver oil	2 g daily
Salt (sodium chloride)	5 g "	Salt	5 g "

These relative proportions of wheat to skimmed milk powder are to be maintained, although the amounts given will depend on the supplies available To provide a diet of 2000 calories for an adult would require about 500 g of wheat and about 45 g of skimmed milk powder

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[1] In Denmark in addition to duties somewhat similar to the above such clinics are expected to give "warrantable instruction to men or women in any matter relating to sexual life, etc. They must give advice on questions of heredity and must explain the procedure necessary for obtaining such abortion as is now legal in cases of rape or incest or when the woman is mentally deficient They must also advise any unmarried woman about the claims that could be made upon the father of her child In short, all matters relating to the protection of maternal health and interests can be rendered through these local centres

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For obvious reasons it is the working-class mother, particularly the most ill-nourished, exhausted, and sick, who most readily resorts to criminal abortion and who takes the gravest risks to achieve it It is her health—already impaired—which is most often sacrificed It is mainly with her predicament that this article deals; for, paradoxically, where therapeutic abortion is most clearly indicated it is least readily obtained Women of the upper and middle classes are generally not allowed to continue a pregnancy which endangers life or subsequent health; but the working-class mother—on whose health the well-being of the whole family depends—is often compelled to run such risks, since for her investigation and relief are seldom accessible There is little doubt in certain pregnancies which should legitimately be dealt with by therapeutic abortion are, on account of inadequate assistance, often terminated by the woman herself and in a manner calculated to produce greater physical disorder

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For the help and protection of such mothers the following facility could be made—a provision based upon a public-health service which has recently been introduced throughout Denmark. Occasional clinics could be held in each district, to be known as "mothers' welfare centres." The officer in charge would not need to be of consultant standing but should have experience in antenatal work and should be provided with facilities for obtaining Aschheim-Zondek tests He—or she—should be in touch with local consultant centres, where cases which might require therapeutic abortion could be referred In addition, the officer might possess special experience in contraceptive work, in which event the clinic could take over or introduce such contraceptive work as is now permissible under the Ministry of Health circular 1622 of 19 which service is still only provided by 245 of the 414 local health authorities (Failure to give contraceptive advice "to those married women for whom further pregnancy would be detrimental to health" must be directly responsible for a high morbidity and abortion-rate The omission reflects most regrettably upon these authorities.)

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nd, A M O (II), Hackney
B Lond, A M O (II), Lam
N Z, A M O (II),
Edin, M R C P

The clinics would be open to women of some agreed income level. To them could be referred the *following* cases:—

(1) Patients for early diagnosis of *pregnancy*, *either* for the assistance of the practitioner with *differential* diagnosis or at the request of the woman herself.

Many institutions can now provide Aschheim-Zondek tests for 4s. 6d., and patients would expect to pay part or all of this fee. How much better for maternal health that women should know that they can spend 4s. 6d. to discover whether or not they are pregnant, than that they should resort to expensive abortifacients whenever a menstrual period is late! The reassurance which a negative Aschheim-Zondek gives to women in certain circumstances is inestimable. The menopausal woman, for example, during the period of what has been termed "the seven years' war," is often the most desperate in her fear of pregnancy, a fear which, in itself, can be detrimental to her state of health and stability.

The officer in charge would have good *opportunity* for making contact with *a woman who appeared* anxious about being pregnant, would discuss with her the reason for her anxiety, and bring to her notice the dangers of inducing a "miscarriage." Officers at the contraceptive clinics find frequently that it is possible to dissuade women from abortion by holding out the assurance that they can later be taught reliable contraceptive methods. Since the dangers of criminal abortion could here be freely advertised and discussed, the work of the clinic would have high educational as well as prophylactic value.

(2) *Patients* would be *referred* for consideration as to the advisability of therapeutic abortion. They would be those who had themselves approached the family doctor for "help," or whom the practitioner regarded as "borderline" cases because of their present state of health or the history of their previous confinements. In every case the function of the officer would be purely diagnostic and administrative. Having diagnosed *pregnancy*, he *would assess the* various relevant clinical factors, if necessary obtaining reports of past confinements from all practitioners concerned. On such evidence he would decide upon the validity of the patient's claim and then refer her for expert opinion. His position would enable him to call upon local consultants for cardiac, renal, and pulmonary disorders while he would be fully informed of the available accommodation in local hospitals.

It is only by a central organisation such as this that a non-paying patient is likely to obtain the necessary investigations before the tenth week of pregnancy. In many cases tests, such as for renal efficiency, will take time, and often more than one opinion will be sought. The presence of a "middle man"—an officer known to be responsible for ensuring this service—should be invaluable to the interests of these patients; and—as is so rarely the case—this public health service is one which would be in no way prejudicial to the interests of the private practitioner. Very few practitioners care to be involved in a case of therapeutic abortion, for it is common experience how frequently misrepresentation is likely to occur. Still fewer are anxious to make the endless arrangements necessary before the merits or demerits of such a case are settled. Yet most would be glad to be spared the necessity for "showing the door" to an anxious unhappy woman and would welcome the opportunity to refer such cases to a clinic ready and able to deal with them.

The establishment of such clinics should offer no great difficulty or expense. Local ante-natal premises would naturally be used and since patients could be expected to travel some distance for this service, one officer giving a weekly or fortnightly session should be able to cover very large areas.[1]

The educational advantages of such clinics would probably spread rapidly among working-class women. The same women have benefited so greatly by the infant-welfare clinics that it is now rare *to find a mother with no knowledge of modern principles.* One *might* hope that money spent on this service would be repaid by a lessening of the services dealing with septic abortion and gynæcological disorders; indirectly also the service might raise and not lower the birth-rate, and particularly the survival rate, *of* both mother and child.

Although by such *means* individual women would be deterred *from embarking on the* hazards of criminal *abortion*, the task of lessening the urge towards this practice rests with the economists, the politicians, and society as a whole. No palliative can easily be found for persuading an elderly multipara with a *grown-up family* to go through with an unwanted *pregnancy*, nor yet can any simple method be devised for solving the problem which faces the pregnant mother of a hungry and overcrowded family. In circumstances such as these the *practitioner's part is* the somewhat minor one of *seeking to protect the* health, *in its truest sense*, of the pregnant woman under his care; and, disinclined as he may be to consider her social status in relation to her pregnancy, he cannot with honesty play his part if he ignores those environmental factors which determine her chances of subsequent life and health. A public health service which would assist the practitioner in this task and help him *in the making of a decision* which may be complex *and onerous, should surely* be welcome.

THE BARE MINIMUM

EVEN in Europe there are today circumstances in which the *shortage* of *foodstuffs* may necessitate *emergency* measures against famine. The technical committee *on nutrition of the League* of Nations Health Organisation has thought it advisable to suggest means of supplying a bare *minimum* that will support life. In the *Bulletin* of the *organisation* (1938, 7, 666) the committee *propose* a basis which can be *modified* according to local circumstances. The diets put forward in the following schedule while extremely *simple* and inexpensive are nevertheless not grossly inadequate from the physiological standpoint.

The *first scheme* is arranged on the basis that a sufficient supply of dry skimmed milk powder is available. The daily ration is as follows:—

Growing children		*Adults*	
Whole wheat	5 parts	Whole wheat	12 parts
Skimmed-milk powder	1 part	Skimmed milk powder	1 part
Cod liver oil	5 g daily	Cod liver oil	2 g daily
Salt (sodium chloride)	5 g ,,	Salt	8 g ,,

These relative proportions of wheat to skimmed-milk powder are to be *maintained* although the amounts given will depend on the supplies available. To provide a diet of 2000 calories for an adult would require about 300 g. of wheat and about 15 g. of skimmed milk powder.

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[1] In Denmark, in addition to duties somewhat similar to the above, such clinics are expected to give [illegible] instruction to men or women in any matter relating to sexual life, etc. They must give advice on questions of heredity and must explain the procedure necessary for obtaining such abortion as is now legal in cases of rape or incest, or when the woman is mentally deficient. They must also advise any unmarried woman about the claims that she should be able to make for the [illegible] of her child. In short, all matters relating to the protection of maternal health and interests can be rendered through such local centres.

The *second scheme* is suitable when the supply of skimmed-milk powder must be limited to young children —

Growing children		*Adults*	
Whole wheat .	8 parts	Wholewheat alone	
Skimmed-milk powder .	1 part	Brewers' dried yeast ..	.. 10 g daily
Brewers' dried yeast ..	5 to 10 g daily	Cod-liver oil	.. 2 g "
Cod-liver oil ..	2 to 5 g "	Salt mixture	.. 10 g "
Salt mixture* .	5 g daily		

* Containing 4 parts sodium chloride to 1 part calcium carbonate

In the children's diet the proportion of wheat to skimmed milk to be maintained, the amounts given to depend on the supplies available.

1. *Provision of antiscorbutic vitamin.*—The above diets provide no antiscorbutic vitamin; this essential principle must be obtained from local supplies: from citrus fruits (oranges, lemons), if available, from potatoes, cabbage, or other vegetables, even from sprouted grains or infusions of non-poisonous green leaves. Half an orange or lemon twice weekly will supply the requisite amount of antiscorbutic principle.

2. *Infants.*—Infants under six months of age should be fed on whole milk if possible (reconstituted from dried or condensed milk when necessary) plus a small daily ration of 2 to 5 g. of cod-liver oil If necessary, skimmed-milk powder may be substituted. The daily ration of antiscorbutic material is also essential for the young infant; 5 g. (or 1 teaspoonful) of fresh fruit juice (preferably orange or lemon) is a suitable daily dose.

3. *Fat.*—The above diets contain no significant amount of fat. It is desirable to add fat in such quantities as are available.

4. *Meat, dried legumes, and cereals,* other than wheat, if available, can be substituted in the above diets for an equivalent amount of wheat.

5. *Supplements of cocoa and sugar,* though not essential, are desirable, particularly in the case of children, as greatly increasing the palatability of such monotonous diets as the above.

MALARIA AND MOSQUITOES

ADDRESSING the Royal Society of Arts on Feb. 7 Sir Malcolm Watson recalled Ronald Ross's address to the same society nearly forty years earlier when he advocated malaria prevention by mosquito control. Sir Malcolm reviewed the movements to combat malaria during each of the four decades since 1900, including the foundation of the Ross Institute in 1926, and outlined some of the achievements of antimalarial work. The adoption of Ross's method of mosquito reduction was retarded in India (and elsewhere) by negative antilarval work in 1902–03 at Mian Mir (as Ross described it "conducted on unpractical and unscientific lines") but it was slowly established in other countries, the most consistently prominent being Malaya. Some results of antimalarial ingenuity during this period were that the construction of the Panama Canal and the Singapore naval base was rendered possible, Port Swettenham was not closed in 1901, many lives were saved in Malaya, Ceylon, India, Europe, Africa, and America, and the cost of production of rubber, tea, gold, and copper was reduced On a Malayan rubber estate malaria cases decreased from 6000 in 1914 to 6 in 1924; one Indian tea estate in 1935 showed a decrease in hospital admissions of 92 per cent. on the 10,378 cases in 1929 (28,659 cases of other diseases were reduced by 44 per cent.), and on another estate during 1927–33 sick-days and costs respectively were reduced by 107,619 (from 219,306) and £6000 (from £13,600).

The Malayan Government began antimalarial work in two towns in 1901, persistently extending it: Ross regarded it in 1926 "as the greatest sanitary achievement ever accomplished in the British Empire." Research was started in 1900, a volume (chiefly by G. F. Leicester) being published in 1908 on the mosquitoes of Malaya Ross himself had realised the importance of species and habits and had recognised culex and anopheles under other Watson showed in his researches on species in 1910 that in low-lying land at or below sea *A. umbrosus* was controllable by open drainage was without effect on malaria amongst hills, latter being due to a mosquito which lived in clear running water of drains and hillside Many species of anopheles were affected by environmental changes and many dangerous swamps, including most rice fields, were harml

During the decade 1900–10 further experiment rural Kapar district of Malaya in 1904 and exp in Italy (although here the sick- and death rate reduced) showed that quinine was not a true pre tive of malaria—a fact confirmed nearly 30 later by the League of Nations). In Egypt Ross in 1902 and Andrew Balfour in 1904 by of drainage rid Ismailia and Khartoum respecti of malaria, while by oiling streams (later permanently by cement drains) Gorgas and Le controlled malaria in Panama.

In 1909 the discovery in Malaya of *A. ma* living in running water explained why swamp places might be intensely malarial: a m advisory board was created, and by this the rubber planters realised the economic val malaria prevention. A campaign was begun 1911 by Watson and Middleton against malari Singapore (later by Given in 1923) In 1 Swellengrebel and Schuffner began their particularly on species sanitation, in the D East Indies and later in Europe; the Rock Foundation undertook research in South Am with preliminary studies (1917–19) of the val *mosquito-proofing, quinine, oiling* and dra work which confirmed experience in Malaya 1920–30 control work was extended throu Malaya, and by Scharff in Penang the death-rate for many thousands of labourers ing the Chenderoh dam during 3½ years in a malarious district was only 4·96 per 1000. In 1 the League of Nations malaria commission created: in India after a preliminary survey lecturer Ramsay began successful work on Assam tea estates in 1924. The Rockefeller Fou tion extended its work successfully in the U.S (1920–25), where in 1924 Darling introduced spe sanitation In 1925 Italy abandoned the qui policy, pursued for a quarter of a century, pract work being begun in Port Torres in Sardinia af field studies by Missiroli and Hackett. In except for French work on mosquito control qui held the field.

From 1930 onwards malaria was now (in S Malcolm's words) "on the run" in Malaya Th Roman campagna had been reclaimed by drain and arsenical destruction of mosquitoes researches of Swellengrebel et al. showed that the six races of *A. maculipennis* were carriers Malcolm described the work of the Ross Institu referring to the pioneer work on the copper min Northern Rhodesia by Simpson et al. in 1929 (wi three years the death-rate of Europeans was red to less than a quarter) and to the successful co at the Lower Zambesi bridge by Harrison in 1 Mosquito control throughout Africa had been g stimulated by these successes and by the mal control courses for laymen: in 1938 there wa record attendance of 186, and the average for past four years had been over 120.

The Ross Institute was incorporated in the Lo School of Hygiene and Tropical Medicine in 1933

KYMOGRAPHY OF THE HEART: CORRIGENDU On p. 252 of our last issue Dr. Franklin W described the case of a man with left ventr aneurysm. At the 13th line of this case-recor reader is rightly referred to one of two kymo reproduced on a special plate; but unfortunat is asked to look at the wrong one—fig. V instea fig. X. We hope this mistake on our part may been recognised as such.

ADDRESSES AND ORIGINAL ARTICLES

IE MODE OF ACTION OF DRUGS OF THE SULPHONAMIDE GROUP

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A NUMBER of theories have been put forward to lain the action of sulphonamide drugs in bacterial ections Briefly, these theories may be divided o four main groups (1) that the drugs have a mulating action on the specific and non specific ly defences, (2) that the drugs neutralise toxic cterial products, (3) that the drugs act on the cteria themselves, either as germicides or in some re subtle fashion by interfering with invasive wer and ability to multiply rapidly, and (4) some mbination of two or more of these explanations e following experiments deal mainly with the chanisms of bodily defence and with the action of e drugs on the bacteria

EFFECT ON SPECIFIC AND NON SPECIFIC BODY DEFENCES

The discovery that 2 (*p* aminobenzenesulphonamido) ridine (hereafter referred to as M & B 693) was ghly active against pneumococcus (Whitby 1938) ovided an opportunity for making more conclusive udies on the question of specific stimulation antibodies than was possible with strepto ccal infections This was because active and ssive immunisation in the mouse is easy to complish with pneumococcus and the active munity induced is reasonably durable Orthodox ethods of immunisation may therefore be compared to efficiency and speed of production with the munity created by treatment of infected animals th M & B 693

Effect on leucocytes and phagocytes—Rabbits fed tensively with M & B 693 over a period of four ys show no changes in the leucocyte count The ug, therefore, does not act as a simple leucocytic mulant Mice inoculated with living pneumococci come leucopenic if the infecting dose is sufficient produce symptoms of illness if the dose is so nall that no illness is produced, the leucocytes main at a normal level The same features can be bserved in mice and rabbits inoculated with large oses of living pneumococci and protected with & B 693 Those animals which survive have a ormal leucocyte count throughout (not leucocytosis), hereas animals which the drug fails to protect have ucopenia, but, if recovery occurs without the d of M & B 693, a leucocytosis is observed In ice and rabbits, therefore, exhibition of the drug not associated with stimulation of leucocytes, he blood picture is an inert one which implies neither timulation nor depression of the marrow

During the course of numerous experiments we have amined sections of the spleens of animals inoculated ith living cocci and protected with M & B 693 e have never been able to demonstrate anything ore than a few phagocyted cocci at any stage in the covery period Stimulation of the phagocytic activity of reticulo endothelial cells has been said to occur in rabbits treated with sulphanilamide (Finklestone Sayliss, Paine, and Patrick 1937), but we have found no evidence of this feature in mice treated with M & B 693 Splenectomised mice are readily protected against 10,000 lethal doses of pneumococci, provided that feeding with the drug is prolonged Feeding up to the 4th day is sufficient to eradicate the infection in ordinary circumstances, but with splenectomised animals, if feeding is stopped on the 4th day, a considerable number of animals die on the 6th, 7th, or later days The spleen would thus appear to play some part in completing the clearance of the infection Gross, Cooper, and Peebles (1937) also found that splenectomy did not prevent the protective action of sulphonamide in mice infected with streptococci, protection was the same as with normal mice

Specific antibodies and specific protection—The first point to receive consideration was the efficiency of the immunity conferred by active immunisation with killed vaccine as compared with that found in animals inoculated with living pneumococci and afterwards saved by the oral administration of M & B 693, It is not possible to immunise actively with small doses of living pneumococci, because with a virulent strain the animals are unable to survive an inoculation which theoretically contains no more than one pneumococcus In a series of experiments it was readily shown that mice which survive inoculation with 10,000 lethal doses of pneumococci, having been treated with 30 mg of M & B 693 as previously described (Whitby 1938), are, one week later, completely immune to a second inoculation with as much as 1,000,000 lethal doses without further treatment This immunity, at the end of one week, is not due to retention of M & B 693 in the body, because none can be demonstrated in the blood, nor is the immunity due to any subtle action of M & B 693 on the immunity-producing mechanism, because mice which have a parallel course of M & B 693 but receive no inoculation with pneumococci are not immune at the end of a week Furthermore, the immunity produced by saving infected mice with M & B 693 is definitely related in a quantitative manner to the infecting dose Thus, mice infected with 100 lethal doses of cocci and saved with M & B 693 are not nearly so immune to subsequent inoculation as are those infected with 10,000 lethal doses of cocci This solid immunity to pneumococcus is specific for pneumococcus and specific for type in the same way as when immunity is created on orthodox active lines, despite the fact that M & B 693 acts on numerous types of pneumococci,

Turning now to the question of active immunisation with killed pneumococci, it was found that 1,000 000 lethal doses of killed pneumococci—an antigen of approximately the same size as 10 000 lethal doses of living cocci because the latter undergo multiplication during the first few hours of the experiment (see table II)—provides, at the end of a week immunity to inoculation with between 10 000 and 1 000 000 lethal doses of living cocci, an immunity which is as efficient as that found in mice which are saved with M & B 693 as described above Finally, mice immunised with killed cocci and given a course of M & B 693 are not more effectively immunised

The above series of experiments was then extended to compare the speed of production of immunity especially as to whether the administration of

M. & B. 693 increased the speed. Five batches of six mice for each of the following groups were used:—

(1) Receiving 1,000,000 lethal doses of killed cocci.
(2) Receiving 1,000,000 lethal doses of killed cocci and a daily dose of 30 mg. M. & B. 693.
(3) Receiving 10,000 lethal doses of living cocci and a daily dose of 30 mg. M & B 693.

The development of immunity was tested by taking daily a batch of six mice from each group and inoculating the batch with 10,000 lethal doses of living pneumococci Thus, batches of six mice from each group were tested for immunity on the 1st, 2nd, 3rd, 4th, and 5th days after primary inoculation Analysis of the results showed clearly that no immunity developed in any group until the 3rd day, and that there was no solid immunity until between the 4th and 5th days Since the result was the same in each group, it may be concluded that M. & B 693 does not affect the speed with which immunity is produced Furthermore, the serum from mice cured of infection with M & B 693 showed protective power for other mice treated with it when such serum was derived from mice killed about the 5th day Serum from mice inoculated with 1,000,000 dead bacteria also developed protective powers about the 5th day, irrespective of whether the mice were just vaccinated or also given M & B 693 as well as vaccination

The speed of production of immunity has also been investigated from the aspect of agglutinin production —a phenomenon of immunisation which is demonstrable in vitro Pneumococcal infections in mice as well as active immunisation with doses of killed cocci of the size described above do not produce agglutinins of titre high enough to allow of clear-cut deductions We therefore used a living Vi strain of *Bact typhosum* With this strain 10^9 bacteria were 100 per cent lethal to mice, whereas 10^8 were just sublethal With a dose of 10^9 bacteria, 33 per cent of mice could be protected by the administration of 50 mg of sulphanilamide distributed in five doses over 3 days. Two groups, each of eighteen mice, were examined for Vi, O, and H agglutinins on different days after inoculation. One series received an inoculation of 10^8 living bacteria only—the maximal sublethal dose The other series received a similar inoculation but were also treated with five doses of sulphanilamide (10 mg) over a period of 3 days In both groups agglutinin production to all three types of antigen was not detectable until the 3rd day after inoculation; thereafter the titre increased on the 4th, 5th, 6th, and 7th days Further observations could not be made, because sufficient blood for a satisfactory test involved killing the animals The experiment provided a clear-cut result showing that animals treated with sulphanilamide develop agglutinins neither earlier nor in higher titre than those which did not receive the drug

Conclusion—The administration of sulphonamide drugs has no stimulating action on the body defences, nor does such administration affect the quality, quantity, or speed of production of recognised specific antibodies

EFFECT ON BACTERIAL GROWTH IN VITRO AND IN VIVO

Effect on the appearance of the organism—That sulphanilamide may cause capsular degenerative changes in streptococci was first observed by Levaditi and Vaisman (1935). The phenomenon is more easily observed with pneumococcus After the intraperitoneal inoculation of pneumococci into mice, samples have been withdrawn and examined at s intervals for evidence of capsular and other chang This has been carried out in mice treated wi M & B. 693, both prophylactically and at the ti of inoculation, as well as in untreated controls I both types of treated animals, at the end of ab two hours the capsule of the pneumococcus appe to be enlarged and to have a rough crenated ed the number of such cocci increases after four ho until most of the organisms show this change I large numbers of cocci no capsule can be found b staining methods; but we have not been able, n mice, to demonstrate that this apparent cap loss is accompanied by loss of type specificity a Telling and Oliver (1938) in the human sub Furthermore, cocci cultivated from blood str infections late in the course of a treated infect (see below) have shown neither capsular loss loss of virulence. The explanation of this appar discrepancy will be discussed later

Effect on multiplication at the site of inoculatio In mice inoculated intraperitoneally with pneumoc and protected with M & B 693, given prophylactica and at the time of inoculation, the organisms multi for the first few hours after inoculation, but not nea to the same extent as in unprotected controls. cocci can be found in peritoneal samples of protect mice at the end of twenty-four hours after inoculati There is no evidence that this multiplication wi the first few hours is in any way due to lag in ab tion of the drug; comparable multiplication occ in animals which receive the drug prophylactical Furthermore, it is obvious from blood-culture res (see below) that pneumococci inoculated into t peritoneal cavity enter and multiply in the blo stream for a few hours Indeed in a high proporti of rabbits inoculated with pneumococci intraveno the blood-stream multiplication of the coccus appear for a period of a few hours, to be even more rapid i animals treated with M. & B. 693 than in contr animals (table I)

TABLE I—BACTERIA PER C CM OF BLOOD, IN TREAT AND UNTREATED RABBITS, AT VARIOUS TIMES AF INTRAVENOUS INOCULATION OF 10,000,000 LI PNEUMOCOCCI

Exp 246/38	1 hour	3rd day	4th day	5th day	6th d
Treated with M & B 693	1875	5000	3200	1500	Dead
	338	4	0	0	0
	1288	156	0	0	0
Untreated controls	82	1672	7400	—	Dead
	26	—	Dead	—	—

Effect on invasive power.—When mice are inocula intraperitoneally with living cocci, there follows invasion of the blood-stream which quickly leads t the death of the animals Mice protected either wi Felton's serum or with a previous infection cured M & B 693 do not suffer blood-stream inva after intraperitoneal inoculation (table II) B when mice are inoculated intraperitoneally wi 10,000 living pneumococci, M & B 693 does n prevent blood-stream invasion, whether the drug given prophylactically or at the time of inoculatio blood-stream multiplication also occurs for a per of at least seven hours, but it is definitely held check and occurs only for a limited period In anim which recover, the blood-stream becomes clear about twenty-four hours. It is evident, therefor that any bactericidal action of the drug does

TABLE II—COMPARISON OF THE EFFECT OF M & B AND OF SPECIFIC IMMUNE BODIES IN PREVENTING BLOOD STREAM INVASION AFTER INTRAPERITONEAL INOCULATION WITH PNEUMOCOCCUS

—		Bacteria per 0·2 c cm of blood		
		2 hr	7 hr	24 hr
Controls Bacteria only No drug 12 mice 4 examined at each period		1500 6500 4000 6000	500 000 + 500 000 + 500,000 + 500 000 +	Dead Dead Dead Dead
12 mice M & B 693 given at time of inoculation 7 hours, and 24 hours	30 mg	2000 3000	5000* 300*	50* 6*
	40 mg	1500 2500	1500* 4000*	0 50*
Immune animals from a previous M & B 693 experiment 6 mice		Nil Nil	Nil Nil	Nil Nil
Animals given 0 02 c cm type I serum 30 minutes after intraperitoneal inoculation No drug 6 mice		Nil Nil	Nil Nil	Nil Nil
M & B 693 (40 mg) given 6 hours before and again at time of inoculation and 7 hours 9 mice		800 400 1500	1600 1000 4000	Nil Nil Nil

* Three colonies from each of these plate counts were grown in broth and tested with type I agglutinating serum. Capsules appeared normal and type specificity was not lost in such cultures.

Mice were inoculated intraperitoneally with 10 000 pneumococci type I. Quantitative blood-cultures were made with 0·2 c cm of blood obtained by heart puncture after killing with chloroform.

instantly become effective. Time is required for the infection to be overcome. Blood cultures from rabbits inoculated intravenously with 10,000 pneumococci have shown that *the clearance of the blood* stream takes longer than twenty four hours in such animals as recover after prophylactic and continuous treatment with M & B 693 (table I).

Table II shows that M & B 693, given prophylactically or at the time of inoculation, does not prevent blood stream invasion, whereas passive immunisation with Felton's serum or active immunisation with a previously cured infection does prevent such invasion.

EFFECTS IN VITRO

A survey of published work and of our experiments makes it clear that the bacteriostatic and bactericidal activity of these drugs varies with the medium in which the test is made, and *it is clear that the results* in certain laboratory media do not run parallel with in vivo activity. Thus sulphanilamide is active against streptococci in vivo but is inactive in peptone containing broth, whereas the same *drug is active* against pneumococcus type I in peptone containing broth (*Britton 1938*) but is almost inactive in vivo. A summary of bacteriostatic activity in different media is shown in table *III*.

Impressed with what may be called the "lag" in action of the drugs when used in living animals, we have been at pains to discover whether there was a similar lag in vitro. Table IV shows the bacterial population, at different times, in 2 c cm of citrated rabbit's blood containing M & B 693, after incubating it at 37° C with different numbers of pneumococci. There is *also shown the* concentration of *M & B 693* in the blood before and after the experiment, this concentration having been attained by feeding the animals before bleeding for the experiment. The numbers of bacteria are expressed as per cubic centimetre of blood. The citrated blood was obtained from three animals, one of them being an unfed control.

Three points of importance arise out of table IV:

(1) The drug is not instantly active; the bacteria multiply during the first two hours to about the same degree as in the control; the restraining action of the *drug is apparent in* six hours, *and sterilisation is* accomplished in twenty four hours. This lag in action is also found in the living animal (tables I and II).

(2) There is a suggestion that there is quantitative relationship between the effective concentration of the drug and the number of bacteria. Thus a concentration of 4 2 mg per 100 c cm extinguishes an inoculum of 500 organisms, whereas a concentration of 16 mg per 100 c cm. is effective against 50,000.

(3) So far as can be ascertained from the quantitative diazo colour test, the concentration of M & B 693 is the same at the end of forty-eight hours, whether the drug has exerted its action or not.

TABLE III—BACTERIOSTATIC ACTIVITY OF M & B 693 AND SULPHANILAMIDE, EXPRESSED AS +, SLIGHT OR 0 IN VARIOUS MEDIA IN VITRO

Medium	Streptococcus (Richards)		Pneumococcus (type I)	
	Sulphanilamide	M & B 693	Sulphanilamide	M & B 693
Blood	+	+	Slight	+
Serum	+	+	Slight	+
Serum broth	0	0	Slight	+
Peptone broth	0	0	+ or slight	+

An extension of these experiments showed that the same result could be obtained with serum as with citrated blood and when M & B 693 was added to shed citrated blood in the test tube. From these last results it may be concluded that leucocytes are not *necessary for* the action of the drug and that the drug need not be absorbed into the animal body (to undergo some change) before it is effective.

Further experiments were carried out to determine more clearly whether there was a quantitative relationship between drug concentration and the

TABLE IV—NUMBER OF BACTERIA IN BLOOD CONTAINING M & B 693 AFTER INCUBATION WITH PNEUMOCOCCI

Concentration of M & B 693 (mg per 100 c cm)	4·2			16 0			Nil		
Bacteria inoculated	50 000	500	5	50 000	500	5	50 000	500	5
No of bacteria— 2 hours	4 000 000	7000	90	70 000	800	10	2 000,000	3000	100
6 hours	+ + +	8000	40	80 000	2000	100	+ + +	+ + +	+ +
24 hours	+ + +	Nil	Nil	Nil	Nil	Nil	+ + +	+ + +	+ +
48 hours	+ + +	Nil	Nil	Nil	Nil	Nil	+ + +	+ + +	+ +
Concentration M & B 693 in 48 hours	4	4	4	16	16	16	Nil	Nil	Nil

number of bacteria affected The results are shown in table V. With an inoculum of 150,000 pneumococci (not included in table V) no effect was obtained with concentrations of the drug up to 16 mg. per 100 c cm.

From these results it is clear that the limit of activity of M. & B 693 in a concentration of 16 mg per 100 c cm is somewhere between 50,000 and 150,000 pneumococci The quantitative grading is well shown in tables IV and V Thus 16 mg per 100 c cm is effective against 50,000 organisms and the lesser numbers of 15,000, 150, and 2; 8 mg. per 100 c cm. is effective against 150 and 2; 4 mg. per 100 c cm just fails to deal with 150 but is effective against 2; and 2 mg. per 100 c cm. is ineffective against even the smallest inoculum of this particular strain in this particular medium Tables IV and V also show well the failure of the drug to be instantly active, even with an inoculum as small as 2 organisms and a concentration of the drug as high as 16 mg. per 100 c cm; in all cases there is definite bacterial multiplication for at least six hours The same phenomenon therefore occurs in both in-vivo (tables I and II) and in-vitro experiments

Phase of the bacterium—The in-vitro experiments described above were carried out with inocula from a six-hours' culture in O'Meara's broth of a highly virulent strain of type I pneumococcus Such a culture is in the active logarithmic phase of multiplication and is the same as that used for our in-vivo experiments But when the virulent type I pneumococcus used in these experiments was subcultured until "rough" colonies could be isolated, these "rough" organisms were unaffected by M & B 693 under in-vitro conditions This feature—namely, alteration in the phase or virulence of the organism—must explain many of the discrepancies between the results of different workers when reporting on in-vitro activity.

DISCUSSION

The experiments reported here support the view that sulphonamide drugs have no stimulating action on leucocytes, phagocytic cells, or the specific immune defences of the body. Furthermore, in that an in-vitro effect can be demonstrated in serum or broth as well as in whole blood, it would not seem that leucocytes are a primary requirement.

Concerning the action of the drugs on the micro-organisms it is necessary to explain (1) the capsular degeneration; (2) the failure of the drugs to check local multiplication and to prevent invasion of the body; (3) the time-lag before the drugs become effective either in vivo or in vitro, and the tendency even to primary stimulation of growth which has also been found by us and others (Colebrook, Buttle, and O'Meara 1936, Finklestone-Sayliss, Paine, and Patrick 1937); (4) the quantitative relationship between the effective dose of the drug and the numb of bacteria; (5) the fact that the drugs act best on young actively multiplying virulent organisms; and (6) the variations in in-vitro activity according to the medium in which the test is made

Capsular degeneration is an in-vivo phenomen and, by ourselves, has only been observed in peritoneal samples; this degeneration may as easily be nothing more than the final process by which the body r itself of dead pneumococci as be due to a primary action of the drug on the organism Telling and Oliver (1938) found, in a case of type III lobar pneumonia treated with M & B 693, that the sputum later contained a non-encapsuled coccus It would appear probable that this coccus, an avirulent one, was present simultaneously with the original type III coccus but, being insusceptible to M. & B. 693, naturally persisted in the sputum after the virulent organism had been eliminated.

So far we have been unable to determine any definite fixation of the effective substances by the bacterium in vitro, for, even when considerable concentrates of the microbes were added, no appreciable loss of the drug could be determined after the micro-organisms had been removed by centrifugalisation. It is too soon to say whether this fact in any way removes the action of these drugs from the conception envisaged by Ehrlich for chemotherapeutic remedies in general

One explanation of the six points set out for discussion would be that in the sulphonamide drugs have at last been found substances which exert a simple germicidal action in vivo as well as in vitro. Such an explanation would mean that the action is in striking contrast with that of the germicides phenol, acriflavine, and brilliant green, which we have tested and found to show no evidence of a "lag" in action and certainly no tendency to exert an initial stimulation on the organism. Furthermore it is hardly probable that a protoplasmic precipitant or coagulant would so carefully differentiate between an identical organism at different phases of growth or between different strains of β-hæmolytic-strep- cocci in the same way as sulphonamide (Hoare 193 The action appears therefore to be much more subtle than that of a simple germicide The failure of the drugs to check the initial local multiplication and invasion is obviously due to the "lag" in action and the lag suggests a slow combination or neutralisation by the drug operating on some essential fo substance or enzyme. The initial growth of the bacterium would then depend on the carrying over in the inoculated bacteria of the essential factor, because even very small numbers of bacteria with a high concentration of the drug nevertheless exhibit the lag. That combination or neutralisation occ

TABLE V—RELATION OF CONCENTRATION OF DRUG TO NUMBER OF BACTERIA

Experiments with 2 c cm. of citrated rabbit's blood Bacteria expressed as per c cm.

Size of inoculum ..	15,000 (10^{-3})					150 (10^{-5})					2 (10^{-7})				
Concentration of M & B 693 (mg per 100 c cm) ..	16	8	4	2	0	16	8	4	2	0	16	8	4	2	[illegible]
Bacteria— 6 hours ..	++	++	++	++	++	3000	8000	9000	60,000	80,000	100	70	7000	15,000	[illegible]
24 hours ..	2000	10,000	++	++	++	Nil	Nil	20	++	++	Nil	90	2500	++	[illegible]
48 hours ..	Nil	++	++	++	++	Nil	Nil	120	++	++	Nil	Nil	Nil	++	[illegible]

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is suggested by the quantitative relationship between drug and bacterium The final pointer is given by the variability in action of the drugs on bacteria according to the phase of growth, according to the individual strain tested, according to whether the organism is rough or smooth and according to the medium presented for food supply A reasonable interpretation of table III is that, in the case of streptococcus, when either sulphanilamide or M & B 693 is present, peptone broth supplies something to the organism which blood lacks, *whereas in the case of pneumococcus both blood and broth lack something essential to the organism It is clear that, since peptone inhibits the* action of both sulphanilamide and M & B 693 on streptococcus but not on pneumococcus, the two organisms differ in the way in which the drug acts on them, and, although the modes of action may be the same in principle, there must be differences in detail The *most rational explanation of these* experimental facts is that the sulphonamide drugs in some way block the vital food supply of bacteria, both drugs being equally effective in blocking the vital food for streptococcus but M & B 693 being decidedly more effective than sulphanilamide in blocking that for pneumococcus It is hardly conceivable that, *in an abundant medium such as an animal's blood* stream, an actual food factor should be destroyed or fixed, but it is conceivable that the bacterial enzyme, of which this food factor is the substrate, should be inactivated Rough and avirulent organisms, themselves insusceptible to these drugs, have *not the exacting food requirements of virulent* bacteria, and the failure of the sulphonamide drugs to affect virus infections, as found by ourselves and others, could be explained by the feeble enzymatic action which viruses are known to have It would appear therefore that the mode of action of the sulphonamide drugs is most probably bound up with the inactivation of bacterial enzymes, but for the complete solution of the problem we must depend on activities of the bacterial chemist In this conclusion we are in agreement with Lockwood (1938) and Locke, Main, and Mellon (1938)

SUMMARY

(1) Sulphonamide drugs do not stimulate leucocytic or phagocytic activity

(2) Sulphonamide drugs do not *affect* the speed of production or the quantity and quality of specific immune bodies

(3) Sulphonamide drugs, *both in vivo and in vitro*, are not instantly active, and there is a quantitative relationship between the effective dose of the drug and the number of bacteria affected

(4) *Sulphonamide* drugs are active on highly virulent organisms and those in the logarithmic phase *of* multiplication, they are inactive on "rough" organisms

(5) Sulphonamide drugs are not simple germicides They probably act by neutralisation of *some metabolic* function or enzymatic activity

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TRIAZOL 156 IN CHRONIC SCHIZOPHRENIA

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This report deals with 254 convulsions elicited in twelve female patients suffering from schizophrenia of two to eighteen years' duration (average eight years and eight months) It was particularly desired to find whether any amelioration of symptoms could be effected in chronic cases

TECHNIQUE

Each patient treated was given a thorough physical examination to exclude organic disease This included blood tests (Meinicke and Kahn), routine investigation of urine, and a four hourly temperature record, the last being continued throughout the treatment The injections were administered in a common dormitory, the beds being separated by screens, except where a patient proved nervous or resistive, when a single room was utilised *A 5 c cm syringe graduated* in fifths or a 2 c cm syringe graduated in tenths was used according to the amount of Triazol required

I have not found that premedication with a sedative necessitates an increased dose of the convulsant *If*, therefore, the patient was very resistive or unduly apprehensive, an injection of morphine sulphate gr ¼ with hyoscine hydrobromide gr 1/100 and atropine sulphate gr 1/150 was given half an hour previously This, however, was only occasionally necessary Breakfast was omitted, but a drink of sweetened tea or lemonade was allowed early in the morning

An attempt was made to elicit a convulsion every fourth day (two days interval), and at least twenty convulsions were elicited before all hope of improvement was given up Circumstances necessitated a fortnight's interval in the middle of the course, and this, as will be explained below, accounts for the final effective doses being lower than they would otherwise have been

INTRAVENOUS DOSAGE

By intravenous injections 120 convulsions were elicited in six patients The minimal convulsant dose used was 0·7 c cm and the maximal 2·3 c cm, the *range of effective initial doses being 0·7–1·1 c cm* Our experience made it the practice to begin with 1 c cm,* since below this amount there are too many initial failures If no convulsion resulted, the dose was increased by 0·2 c cm at a time The left and right arm were injected alternately, pressure was made with a swab immediately the needle was withdrawn, and a bandage was applied In this way bruising *was always avoided*

The first sign of the drug's action was twitching of the eyelid muscles Then generalised muscular spasms appeared, 5–30 seconds after the injection After an interval of less than a minute in 70 per cent of treatments (exceptional times were up to twelve minutes) there was a typical epileptic fit When the interval was more than one minute, an increase by 0·1 c cm or 0·2 c cm on the next occasion usually brought on the fit more quickly, and this was always considered desirable On the other hand, if the fit was regarded as too powerful, or if two occurred, the subsequent dose was diminished by 0·1 c cm

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* Further experience has shown that with patients of small build an initial dose of 0·5 c cm may produce a convulsion In such cases it is now my practice to commence with 0·7 c cm

With regard to the dosage in succeeding injections, a definite but variable tolerance to the drug developed in five of the six patients, necessitating a final effective dose of from one and a half to more than twice the initial dose. Such tolerance does not last long and disappears partly or completely if the drug is withheld for two weeks If treatment is resumed after such an interval, one should start with the original effective dose; otherwise a batch of fits will result This aspect is dealt with in more detail in the next section

INTRAMUSCULAR DOSAGE

We used intramuscular injections when there were no convenient veins available, or when the patient was excessively resistive, and 134 fits were thus elicited The minimal effective dose used was 0 9 c cm. and the maximal 2 8 c cm., the range of successful initial doses being 0 9–1 8 c cm Our experience led us to begin with 1 3 c cm, and the principles of increase or diminution of dose in subsequent injections are the same as for the intravenous route.

In the great majority of instances the fit was preceded by a period of myoclonic movements, which began 3–12 minutes after the injection and lasted 2–18 minutes. On only five occasions (4 per cent) did the fit occur after half an hour from the time of injection (32, 35, 47, 50, and 60 minutes were the exceptional instances) Occasionally there was no myoclonus, the fit occurring suddenly, and in such cases the reaction time was very short. During the incubation period the patient appeared only partly conscious, and, as with the intravenous route, there was no subsequent memory of it

Development of tolerance was the rule here. The following is an illustrative series (each + denotes a fit): 1 5 (++), 0·9, 1·1, 1 3 (+), 1 3, 1 5 (+), 1 5, 1·7 (+), 1·7 (+), 1 8, 2 0 (+), 2 0, 2·2 (+), 2·2, 2 5 (+)

It will be noted that the first dose of 1 5 c cm was too high, and produced two fits On the seventh occasion, however, this dose proved ineffective, and the amount had to be worked up to 2 5 c cm At this stage there was an interval of two weeks, after which a dose of 1·5 c cm. produced a single fit only, showing that tolerance had considerably decreased during this interval In two other cases the dose last used was repeated after a similar interval, with the result that batches of three and four fits occurred, succeeding each other at intervals of 10–15 minutes The possible beneficial effect of multiple fits has been suggested by Walk and Mayer-Gross (1938b), but the aim in this series of cases was to obtain one fit only at each treatment.

SUPPLEMENTARY DOSE WHEN NO FIT OCCURS

It is generally accepted that to obtain the best results a convulsion should be elicited at each séance. Since, in contrast to Cardiazol, triazol disappears comparatively slowly from the blood, the second dose should be less than the first if it is given after only a short interval. The system of dosages suggested here is necessarily tentative and will no doubt have to be modified with further experience, but so far it has worked in the great majority of instances As regards the intravenous route, several tests have shown that very little of the triazol disappears in 5 minutes An example is given in table I After 10 minutes, however, there appears to be an appreciable destruction or excretion of the drug, at least sufficient to make the difference between the occurrence and non-occurrence of a fit. An example is given in table II

The practice followed was that if no convu occurred after 5 minutes a supplementary do 0 2–0 6 c.cm was given in the other arm Sma amounts were used when myoclonus still pers and larger amounts when the effect of the fi injection was slight. With the intramuscular r

TABLE I—TO SHOW THAT VERY LITTLE TRIAZOL DISAPPEARS IN FIVE MINUTES

Date in 1938	Dose (c cm)	Effect
Aug. 16	1 8	Fit after 25 sec
„ 19	1 8	„ 11 min.
„ 22	0 9 followed by 1 0 after 5 min	Fit 20 sec. after secon injection
„ 25	2 0	Fit after 20 sec
„ 29	2 0	„ 30 sec
Sept 1	1 1 followed by 1 0 after 4½ min.	Fit 2½ min. after secon injection
„ 4	2 0	Fit after 4 min

TABLE II—TO SHOW APPRECIABLE DISAPPEARANCE TRIAZOL AFTER TEN MINUTES

Date in 1938	Dose (c.cm.)	Effect
Sept 6	1 2	Fit after 3½ min.
„ 12	0 8 followed by 0 4 after 10 min	No convulsion
„ 15	1 1	Fit after 30 sec.

it was found that a second dose equivalent to a th of the first, repeated after half an hour, was genera successful in producing a convulsion At first quarter had been tried, but this was ineffectiv and half the first dose sometimes resulted in t fits By following the above system of supplementa injections there will be very few failures in elicit a convulsion

SPECIAL FEATURES

(1) With an inadequate dose, muscular spa only occurred Sometimes there was a state excitement and aimless restlessness

(2) With a dose somewhat beyond the adequa one, two or three convulsions resulted

(3) On one occasion, when an injection w inadvertently given subcutaneously, the pati became emotionally agitated and, besides exhibit infrequent myoclonic movements, talked contin ously in a disjointed manner for about an ho concerning her past life. It is possible that use psychological material may be elicited in this man for purposes of psychotherapy

(4) The tendency to post-convulsion vomiting w very variable, some patients being more sensiti than others in this respect. In all but one case th vomiting centre soon became tolerant, and th symptom ceased to be bothersome. In this sing patient premedication with atropine was tried, a suggested by Walk and Mayer-Gross (1938a) dose of gr. 1/50 was found to be effective in preventi vomiting.

COMPLICATIONS

There were no fractures or dislocations Wi the intravenous route no thrombosis or sclerosis w noted; with the intramuscular route there were local reactions No cardiac arrhythmias occurr One patient exhibited a tendency to "swallow her tongue immediately after the fit and at tim ecame very cyanosed , this was immediately relieved y pulling the tongue out with forceps. The only omplication was the development of acute pul onary tuberculosis

The patient had shown no pyrexia or other signs efore the treatment or during the first eight weeks treatment After the fourteenth convulsion, bout two hours after the injection, she became yanosed, with shallow breathing Oxygen relieved er condition, and she seemed her usual self in the ening The next day her temperature was 100° F , nd she was troubled by a dry cough Crepitations the right lung were noted the temperature began swing, and she died twenty six days after the urteenth convulsion Sputum was not available r examination, but tubercle bacilli were found the urine nine days before death

This suggests an acutely severe bacteræmia, and iere is no doubt that the fit activated an old healed sion in the lungs The possibility of such a danger as been referred to by Cook and Ogden (1938), nd in chronic schizophrenics, who are said to be nduly liable to tuberculosis it would be advisable examine the chest radiographically † before arting convulsive treatment Whether the old sion in this particular case would thus have been ade apparent it is impossible to say, because no itopsy was permitted Fortunately this fatal itcome was not so tragic as it may appear, since ie patient had been under certificate for over 18 ears, was noted as very regressed in 1921, and a covery was hopeless in the ordinary way

A similar case during treatment with cardiazol as reported by Harris and Birnie (1938) Such a omplication is therefore not peculiar to triazol but ay occur in any form of convulsive therapy I n not aware that any special explanation has been fered for this eventuality , I regard it as comparable the awakening of a latent pulmonary focus, such s not uncommonly happens as a sequel to whooping ough In both instances there is a great strain the pulmonary tissues, and it is possible that the yperventilation which follows a fit brings about rupture of an old healed lesion, thus setting tubercle acilli free into the system

RESULTS

No very startling results could be expected in this ries, recoveries being very uncommon with any rm of treatment in cases of over two years' duration hree out of the twelve cases showed some improve ent, this consisting of much lesser degrees of ependence, employability of a higher grade, and creased alertness The following is an example f a pronounced effect

The patient aged 15, was under certificate for x years and four months There was a history of previous mental attack at the age of 18 She ad been in a state of katatonic stupor for over five ears She was mute, destructive, and unemployable , ie ate like an animal and was terribly filthy in habits ler progress under treatment was as follows :—

Aug 27–Sept 10, 1938 Six convulsions elicited

Sept 18 Habits clean Not destructive Washes rself Uses knife and fork Has begun to speak ut in a very disconnected manner

Sept 22–Oct 28 Five convulsions elicited

Oct 28 Has been helping in wardwork and ccupies herself knitting in the arts and crafts class

Nov 4–7 Two convulsions elicited

Nov 9 Able to talk about her past life but in a ry rambling manner Answers many questions relevantly but often incorrectly—e g , gives her age as 26 Has written a letter home for the first time since admission

Nov 10–20 Seven convulsions elicited

Nov 29 Maintains improvement Has written another two letters home

Though none of the patients recovered, such improvement as is illustrated by this case is a great boon in a mental hospital, where a large proportion of the chronic inmates are schizophrenics

SUMMARY

(1) A system of triazol dosage for intravenous and intramuscular injection is outlined, based on experience from the production of 254 convulsions

(2) A proportion of chronic schizophrenics are benefited, and this would make the treatment worth while from the subsequent ease in the nursing of such patients

(3) The danger of awakening latent pulmonary tuberculosis is illustrated by a case which ended fatally

(4) *Triazol is a reliable* convulsant for both intra venous and intramuscular use, a series of fits having been successfully induced in all the cases tried It is without danger in subjects free from organic disease, in whom no complications or sequelæ were noted

I wish to express my thanks to Dr V L Connolly, the medical superintendent, for permission to carry out this investigation , to Dr T Gilchrist for helping me with the injections , to the nursing staff for their enthusiastic coöperation , and to C H Boehringer *Sohn of* Nieder-Ingelheim *for giving us a liberal* supply of triazol.

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† Since the above was written Dr J C Speers in a paper ad before the S W division of the Royal Medico-Psychological ssociation on Oct 27 1938 has recommended routine radio raphy of the lungs

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REMISSIONS IN SCHIZOPHRENIA

INSULIN AND CONVULSION THERAPIES COMPARED WITH ORDINARY TREATMENT

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THIS paper describes briefly and compares the results obtained in the treatment of 218 cases of schizophrenia divided into three series according to whether treatment was by ordinary hospital methods, by hypoglycæmia, or with convulsant drugs Results from the two special treatments in other psychiatric illnesses are also described Diagnostic terms are used in the sense given to them by Henderson and Gillespie (1936) In particular, paranoid reaction types are grouped separately from schizophrenia This is a preliminary report and we hope to publish at a later date detailed analyses of each series giving criteria of diagnosis, technical information about treatment, and reports of cases

It was possible to follow up the first series for periods varying from three months to five years after discharge and the second series for three to nine months , the third series has no follow up The results in each series are classified in five parallel and nearly comparable groups :—

Group I (*complete remission*).—These are the patients in each series showing absence of all symptoms and having insight into the illness. They have been discharged from hospital and are leading a normal social life. In the first two series the patients have returned to their usual occupations.

Group II (*social remission*).—This applies to the first two series only and means those patients who are leading a normal social life and following their usual occupations but continue to show some schizophrenic symptoms, varying from lack of insight to hallucinations.

Group III (*at home improved*).—These are patients who have shown definite improvement and have been able to return home. All such patients in the first and second series have been at home for at least five months, except one in the second series.

Group IV (*remitted and relapsed*).—This applies only to patients treated by ordinary hospital methods. They have had a remission of any degree which has allowed them to be at home for at least three months, but they have now relapsed.

Group V (*unimproved*).—These are patients who have not had a remission of at least three months.

TREATMENT BY ORDINARY HOSPITAL METHODS

The patients in the first series were treated by investigation, understanding and discussion of the patient's personality, environmental difficulties, and habits of reaction ; attempts at resocialisation in the hospital and on discharge ; occupational therapy ; and, when necessary, attention to the physical health, especially to focal sepsis All first admissions for schizophrenia during the five-year period from Aug. 1, 1932, to July 31, 1937, have been investigated. There were 133 such cases, of which 129 have been traced For the follow-up some patients were personally interviewed by the psychiatrist ; in other cases a relation was interviewed ; and in others one had to depend on a written report by the patient or a relation. This follow-up was begun in September, 1938, fourteen months after the last case had been admitted. The results are as follows :

Group	*Cases and per cent.*
I—Complete remission	15 (12)
II—Social remission	11 (8)
III—At home improved	12 (9)
IV—Remitted and relapsed	27 (21)
V—Unimproved	64 (50)
Total	129

Of the 15 complete remissions 12 patients have kept well for over two years and 1 for over a year, and 2 had a second attack from which they again recovered. Death resulted in 1 case in group IV and 5 cases in group V. In analysing the records of the patients with complete remissions it was found that 7 of them had suffered from an acute schizophrenic illness which could not be fitted into any of the standard subgroups. Recoveries occurred, but much less frequently, in the simple, catatonic, paranoid and hebephrenic subgroups ; the remission-rates within each subgroup were much the same.

TREATMENT BY HYPOGLYCÆMIA

Since March, 1936, insulin treatment, according to the method of Sakel (1935), has been used in this hospital. Patients were treated with or without shocks according to the type of illness. The number of shocks given varied from 3 to 60 ; the duration of treatment varied from 15 to 94 days. In th cases 30 shocks were given unless improvem occurred earlier. The follow-up consisted of personal interview in each case. This series incl 50 cases, of whom 48 suffered from schizophr and 2 from anxiety states. The results in schi phrenia are as follows :—

Group	Cases and per cent.
I—Complete remission	6 (13)
II—Social remission	6 (13)
III—At home improved	5 (10)
V—Unimproved	31 (64)
Total	48

Of the anxiety states 1 showed a social remissi and the other no improvement. Analysis of th remitted cases showed that 4 belonged to the paran subgroup, 1 to the simple, and 1 to the catato subgroup. In all but one case the illness began wi depression ; in 4 cases it began within six mon of admission.

TREATMENT WITH CONVULSANT DRUGS

In July, 1938, Cardiazol and Triazol therapy wa begun. Since then 68 patients have been treated of whom 41 suffered from schizophrenia and 5 from paranoid reactions. Full convulsant doses we aimed at, and the number of fits given varied fro 2 to 35 ; the lower numbers apply to patients wh made a quick recovery or refused further treatme Treatment was refused by 15 patients, 17 othe disliked the treatment but did not refuse it Complica tions included 3 cases of dislocation of the jaw, one of extrasystoles persisting for three days, one of double vertebral compression fracture (Stalker 193 and several of temporary impairment of memory The results are as follows :—

SCHIZOPHRENIA

Group	Cases and per cent
I—Complete remission	4 (10)
III—At home improved	13 (32)
V—Unimproved	24 (58)
Total	41

PARANOID REACTIONS

Group	Cases
I—Complete remission	3
III—At home improved	1
V—Unimproved	1
Total	5

DEPRESSIONS OF VARIOUS TYPES

Group	Cases
I—Complete remission . ..	0
III—At home improved	3
V—Unimproved	7
Total	10

PSYCHONEUROSES

Group	Cases
I—Complete remission	2
III—At home improved	3
V—Unimproved	5
Total	10

One case of psychopathic state was tre without improvement We have found that th mental symptoms are occasionally aggravated this treatment This happened particularly in a case of mania Of the four complete remissions in schizophrenia two were stupor reactions Three of the five cases of paranoid reaction showed complete remissions We have found that cases of psychoneurosis—anxiety states, hysteria, and obsessive states—which did not respond to prolonged psychotherapy yielded fairly good results with convulsant drugs

COMPARISON OF RESULTS IN SCHIZOPHRENIA

The above mentioned results of the three methods of treatment of schizophrenia are compared in the accompanying table

Group	Ordinary treatment	Hypoglycæmia	Convulsant drugs
	Cases and per cent.		
I—Complete remission	15 (12)	6 (13)	4 (10)
II—Social remission	11 (8)	6 (13)	0 (0)
III—At home improved	12 (9)	5 (10)	13 (32)
IV—Remitted and relapsed	27 (21)	0 (0)	0 (0)
V—Unimproved	61 (50)	31 (64)	24 (58)
Total	129	48	41

CONCLUSIONS

(1) There is no significant difference in the numerical results obtained in schizophrenia by ordinary hospital treatment, hypoglycæmic treatment, and convulsant treatment 218 cases are considered

(2) Spontaneous remissions occur most often in acute schizophrenic illnesses which cannot be fitted into the standard subgroups, and in cases in which the affect is well preserved and there is little or no disharmony between mood and thought

(3) Hypoglycæmia gives the best results in the paranoid subgroup and in cases in which the affect is well preserved There are no complications of importance

(4) Convulsion therapy appears to be best suited for stupor reactions It is also useful in cases of psychoneurosis resistant to psychotherapy The disadvantages of the treatment are that about half the patients object to it and that injuries can occur Occasionally cases are made worse mentally

(5) We believe that the field of the special treatments is very limited, but that each should be used in the special types of case indicated above They afford the best chance of recovery to a potentially recoverable patient whose illness is dragging on They reduce the average duration of hospital treatment

We thank Prof D K Henderson for his advice and for his constant interest in this work

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Corrigendum —On page 373 of our last issue the Hunterian Orator alluded to the lymphatic work of "the late Prof Jamieson of Leeds." Few readers will, we hope, need to be reminded that Prof Jamieson now holds the chair of human anatomy and embryology at Trinity College, Dublin.

CARDIAZOL THERAPY OF SCHIZOPHRENIA

SOME STATISTICAL DATA

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THE following report on the results of Cardiazol therapy in schizophrenia is based on the therapeutic results of American and European authors, some of them already published and others privately communicated to Dr L von Meduna The various authors classify their published cases so differently that it is very difficult to use them as a homogeneous group in which the therapeutic results can be calculated Some of the authors, for example, report the number of acute, subacute, and chronic cases treated, but do not say what the therapeutic results in the separate groups (acute, subacute, and chronic) have been Other authors, again, report only percentages The classification of the remissions is rather loose—e g, the very relative notion of

TABLE I—RESULTS OF CARDIAZOL THERAPY IN SCHIZOPHRENIA

No	Hospital	Cases		Full remissions (*number and per cent*)
		Total	*Acute and subacute*	
1	Buffalo City Hospital	[illegible]8	31	19 (61)
2	Chicago State Hospital	208	127	93 (74)
3	Columbus State Hospital	30	12	5 (42)
4	Elgin State Hospital	136	27	16 (59)
5	Galveston State Hospital	22	7	4 (57)
6	Illinois Psych Institute	69	41	16 (39)
7	Longview Hosp (Cincinn)	5[illegible]	14	4 (29)
8	Peoria State Hospital	32	8	4 ([illegible]0)
9	Philadelphia General Hosp	[illegible]2	29	2 (7)
10	Torrance State Hospital	41	11	3 (2[illegible])
11	Young Hospital (Omaha)	13	6	6 (100)
12	Ypsilanti State Hospital	32	10	3 (30)
13	Westport Sanatorium	17	11	6 ([illegible]4)
14	Lipótmező and Angyalföld Budapest	230	74	4[illegible] (65)
15	Lipótmező, Budapest	106	[illegible]	24 (41)
16	Lipótmező, Budapest	24	15	11 (70)
17	Egy Klinika Szeged	73	31	11 (35)
18	Bexley Hospital, Kent	27	13	9 (69)
19	Brentwood Hospital Essex	44	18	4 (22)
20	Burghölzli Zürich	59	17	[illegible] (29)
21	Waldau, Bern	112	34	17 (50)
22	Am Feldhof Graz	100	51	23 (45)
23	Univ Klinik Vienna	39	13	9 (69)
24	22 hospitals in Germany	26[illegible]	96	36 (38)
25	Univ Klinik Frankfurt	15	12	[illegible] (58)
26	Univ Klinik Kiel	30	21	8 (38)
27	Palermo (Italy)	1[illegible]0	63	42 ([illegible]9)
	Total	[illegible]011	810	43[illegible] ([illegible])

Standard deviation from the mean = 3 8 per cent "social remission" or "very good improvement" is used Other sources of divergence in assessing the results—e g, lack of psychotherapy, differences in method, and number of shocks given—have been emphasised by von Meduna several times.

TABLE II—RESULTS OF CARDIAZOL THERAPY IN DIFFERENT COUNTRIES

Country	Cases		Full remissions (number and per cent)
	Total	Acute and subacute	
Austria ..	130	64	32 (50)
England	71	31	13 (41)
Germany	310	129	51 (39)
Hungary	433	178	94 (53)
Italy	120	53	42 (79)
Switzerland .. .	162	51	22 (43)
U.S.A. .	785	334	183 (54)
Total .. .	2011	840	437 (52)

In the present report, to have approximately homogeneous groups, all cases with less than eighteen months' illness have been classified in one group (acute and subacute) Of the remissions only full remissions have been noted, as assessed at the time of discharge. With this standard the complete remissions are 52 per cent, with a standard deviation from the mean of 3 8 per cent (see table I) The standard deviation would have been lower had it not been for the results given by the Philadelphia General Hospital (table I, No 9), which showed a remarkably poor recovery-rate When the data are grouped according to countries (table II), there is considerable agreement, except with the Italian figures The percentage of full remissions given in tables I and II refers only to the acute and subacute cases The chronic cases are left out because various authors include cases of 1½–10 years' duration It is well known how hopeless are cases of more than 6 or 7 years' duration; arrest of the progress of the illness is all that can be expected, and the resulting defect is difficult to judge in its quality and not of great practical importance

TABLE III—MALZBERG'S RECOVERY-RATE FOR SCHIZOPHRENICS TREATED WITH INSULIN

Total duration of psychosis before treatment	Cases	Recovered (number and per cent)
1 month	7	3 (42 9)
3 months	99	33 (33 9)
6 months	92	19 (20 7)
6 months–1 year	119	19 (16 0)
1 year–2 years	368	45 (12 2)

The recovery-rate (52 per cent) closely agrees with that quoted in Thomas and Wilson's (1938) report (53 per cent). It also confirms the results of von Meduna reported at the Amsterdam congress: "In the . . . so-called new cases, with an illness of not more than eighteen months' duration, the number of complete remissions is 53 per cent" Although von Meduna regards this figure as, if anything, an underestimate, it is high in comparison with Malzberg's (1938) recovery-rate for schizophrenics treated with insulin (table III).

In conclusion it should be stated that, even if the different authors have perhaps used the term "full remission" too generously, with the result that the strict recovery-rate would, in fact, be slightly lower than the figures here recorded, it would still be sufficiently high to justify cardiazol treatment

I wish to express my thanks to my former chief, Dr. L. von Meduna, for providing me with his hitherto unpublished results and with the manuscript of his lecture in Amsterdam.

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BOECK'S SARCOIDOSIS

A CASE-RECORD

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THE terms lupus pernio, Besnier-Boeck's disease, Boeck's sarcoidosis, and Shaumann's benign lymphogranuloma are synonyms for a disorder of parts of the reticulo-endothelial system characterised by nodular lesions composed of a central mass of endothelial cells surrounded by a fringe of lymphocytes and, very rarely, a giant-cell of Langhans type Caseation is never seen in these lesions, tubercle bacilli are not evident in specially stained sections, and inoculation of material from these nodules into a guinea pig gives a negative result

Some authors have suggested that this disease and uveoparotitis are a tuberculous or so called paratuberculous manifestation, but there seems to be no definite clinical or experimental evidence to support this conception Syphilis has also been blamed, but without good reason However, the cause of the disease remains so far unknown. On histological grounds it appears to belong to a group of diseases of the reticulo-endothelial system in which may be included uveoparotitis (Heerfordt), lymphadenoma (Hodgkin), and certain other allied disorders Uveoparotitis and Boeck's sarcoidosis run a chronic benign course but terminate, except for the ocular sequelæ, in some cases, in complete recovery after a number of years, whereas lymphadenoma is malignant and fatal.

The lesions of Boeck's sarcoidosis are found in the lymph-nodes, spleen, skin, lungs, parotid and lacrimal glands, bones of the fingers, the conjunctiva cornea, the uveal tract, and more rarely in the optic nerve, chiasma, breasts, testicles, upper air-passages, & hypophysis All these tissues may not be affected during the course of the disease, which manifests itself in some only. Healing may occur in one group of structures and on remission the disease appear in another Lymphadenopathy is evident in all cases at some stage and may be generalised or affect only one group of lymph-nodes, which becomes nlarged, discrete, mobile, painless, and insensitive Splenomegaly is also apparent in a number of cases The skin lesions are bizarre For descriptive purposes hey may be grouped as follows —

(1) *Miliary lupoid* —(*a*) Small reddish-brown hemispherical papules and nodules, the size of a corn seed, soft, and with a smooth surface *which shows light* desquamation and hyperkeratosis in some cases These may become flattened, spread out, depressed n the centre, and ultimately cicatrised atrophic plaques (*b*) The nodular variety is rarer, and the esions are larger than those just described, some being 5 cm in diameter during the stage of eruption They *affect first the cheeks and are also found on the* nose, shoulders, extensor aspects of the upper extremities, and the knees They are smooth, lightly elevated, and bluish red The florid stage may last twenty years and the lesions become iolaceous and have a telangiectatic surface During evolution the centres become flattened and depressed, the *margins telangiectatic and pigmented*, and the pots annular

(2) *Lupus pernio* —The skin of the cheeks, nose, nd sometimes the lobes of the ears and the skin f the fingers over an associated osseous lesion is diffusely infiltrated, with a sharp border and a burnished surface

(3) *Angio-lupoid* —Soft infiltrated violet-red plaques howing many telangiectases are found on the side of the root of the nose in middle aged females

(4) *Erythrodermic sarcoidique* —Large superficial serpiginous red areas affect the front of the legs and thighs

The lung fields on X ray examination show diffuse mottling resembling miliary tuberculosis but coarser nd less regularly disposed The mediastinal and hilar lymph nodes are enlarged, and in some cases here are basal crepitations and cough There may be enlargement of the lacrimal and parotid glands, he latter being associated with facial palsy The phalanges of the hands and feet show in some instances painful fusiform swellings, which radiographically appear as a lace like network with small areas of rarefaction surrounded by a zone of increased density These osseous lesions may lead to mutilation or heal with some deformity of the nail when the terminal phalanx is affected

The ocular manifestations associated with Boeck's sarcoidosis are not common Blegvad (1931) states that iridocyclitis occurs in 10 per cent of the cases, but it seems that the incidence may be less than this between 5 and 10 per cent Blegvad (1931), Schoeppe (1920), Seefelder (1932), and Coppez and Dujardin (1938) have noted multiple translucent yellowish projecting follicles in the palpebral conjunctiva and upper fornix, some of which formed a conglomerated mass resembling a fungating meibomian granuloma Stumpke (1913) has seen keratitis, consisting of small, superficial, corneal opacities, associated with the cutaneous lesions of Boeck's sarcoidosis, and this complication occurred in the case reported here Iritis, iridocyclitis, and uveitis have been noted by a number of authors, and Bering (1910) and Coppez and Dujardin (1938) have reported greyish nodules in the iris These bear some resemblance to tuberculous iritis, they are more frequently disposed at or near the periphery of the iris and more rarely near the pupil margin They may disappear and reappear with remissions of the disease The iritis is relatively painless Some of the cases of iridocyclitis recover and have a reasonable degree of vision, but others end in atrophy of the globe, this disastrous sequel has been recorded by Habermann (1927), Schoeppe (1920), Mylius (1928), and Fraenkel (1922) and occurred in our patient

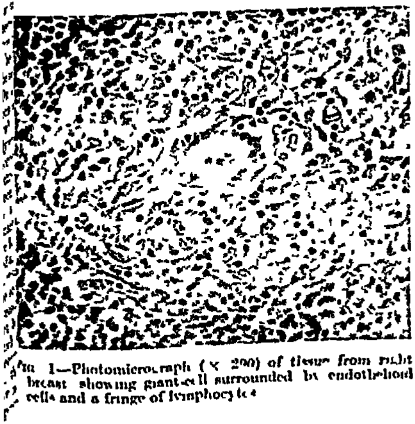

Fig 1—Photomicrograph (× 200) of tissue from right breast showing giant-cell surrounded by endothelioid cells and a fringe of lymphocytes

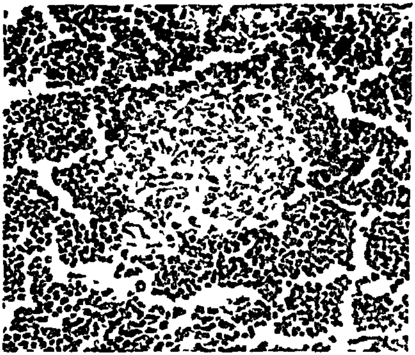

Fig 2—Photomicrograph (× 200) of tissue from a cervical lymph node, showing a mass of endothelioid cells *surrounded by lymphocytes*

Reis and Rothfeld (1931) have described the case of a girl, aged 17, who suffered from Boeck's sarcoidosis and had bilateral papilloedema and subsequent optic atrophy Necropsy revealed well defined follicular infiltration of the left optic nerve, left papilla, and chiasma with endothelioid cells which extended *to the cerebral peduncle and left temporal lobe* There were no areas of caseation, no necrosis, and no giant cells Meningeal symptoms and signs and right hemicrania were present in a patient whose case is reported by Coppez and Dujardin (1938) These authors comment also on the slow course of Boeck's sarcoidosis and the exacerbation of symptoms at the menses Anæmia is mild or absent, a moderate mononucleosis and eosinophilia and an increase of plasma globulin being present in some cases In our case there were lesions in the breasts

CASE-RECORD

The patient was a woman aged 41 In August, 1935 when aged 38, she noticed a painless lump in her right breast situated in the 10 o'clock meridian and 3 in. from the nipple. It was ovoid, 1½ by 2 in., well defined, hard and mobile in the breast, and had a smooth surface, and the underlying skin was normal. There was some enlargement of the axillary lymph-nodes on the same side In the left anterior and posterior triangles of the neck there were many discrete enlarged cervical lymph-nodes, both superficial and deep, which were elastic and mobile. These had no deep fixation, and the overlying skin was normal. The enlarged nodes were said to have been present since the age of 14 and to have changed little in size On Oct 3, 1932, the growth in the breast and a lymph-node in the left posterior triangle of the neck were excised. Histological examination of these revealed the structure of sarcoid tissue (fig. 1)

In 1933 she was under treatment at the Royal London Ophthalmic Hospital (Moorfields) for iridocyclitis of both eyes On Sept 4, 1934, she attended the ophthalmic department at St Bartholomew's Hospital; complicated cataract, lowered intra-ocular pressure, and chronic uveitis were noted On Oct 4, 1934, an excess of fluid was noted in both knee-joints. She was readmitted to St Bartholomew's Hospital on Feb 8, 1935, because of enlarged nodes in the left side of the neck, swelling in the left parotid gland, and left facial paresis Some lymph-glands were removed from the left side of the neck and showed the characteristic features of sarcoidosis (fig. 2).

The vision at this time was found to be reduced to perception of light only, owing to bilateral iridocyclitis and complicated cataract The iridocyclitis was plastic, with posterior synechiæ Right iris bombé was present and the intra-ocular pressure on both sides was raised There were no definite nodules on the iris. For the relief of the secondary glaucoma left iridectomy was performed by one of us (C B V T), but the coloboma gradually became occluded by fresh exudate.

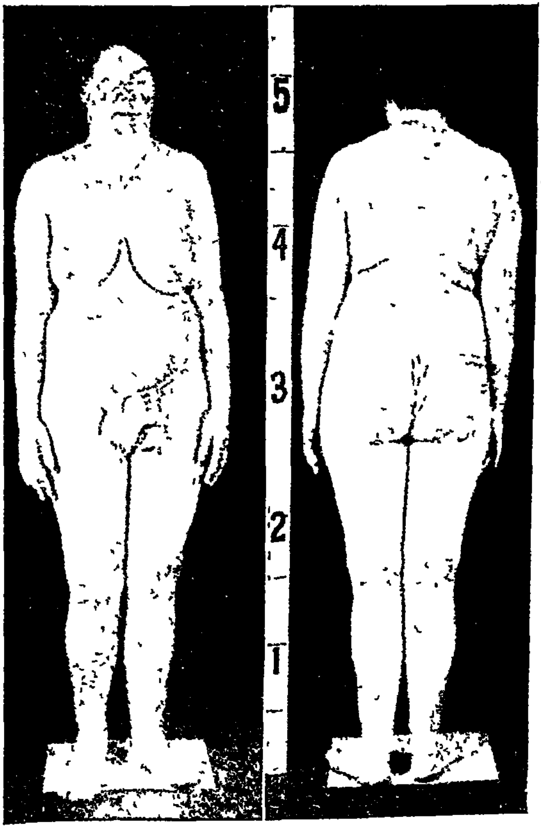

Fig. 3—General development and myxœdematous appearance of a woman, aged 44, with Boeck's sarcoidosis

Investigations carried out at this time with negative results for the accessory nasal air sinuses and the Wassermann and sigma reactions and clinical examination of the chest gave no positive signs Radiograms of the chest suggested healed sarcoid lesions in the right lung

On Jan 30, 1936, at the age of 42, the left eye was soft and atrophic There was keratitis in the right eye with ring staining and vascularisation of the cornea The patient now had the classical features of myxœdema and bilateral cervical and axillary lymphadenopathy.

Present condition—Fig. 3 illustrates her general development and myxœdematous appearance She has a high colour, a brownish skin with multiple melanomata, clinically benign, of various sizes, scattered over dorsal, lumbar, and pectoral regions, the left anterior axillary fold, the left antecubital fossa and forearm, and the abdominal wall In the right hypochondrium there is a brownish purple vascularised cutaneous lesion, which is thought to be a miliary sarcoid.

In the right eye the cornea has vascularised opacities, the anterior chamber is of average depth, the iris is bound down to the lens capsule, and the iridectomy coloboma is occluded with fibrous tissue The lens is densely opaque from complicated cataract, the intra-ocular pressure subnormal, and projection of light inaccurate Vision is reduced to perception of light The left eye is shrunken and atrophic and there is no perception of light

In the left posterior triangle of the neck there are three oblique scars of incisions made for the removal of enlarged cervical lymph-nodes There is a mass of enlarged lymph-nodes in the left supraclavicular space These are mobile under the skin and on the deep tissues They are smooth and are firm and elastic. The overlying skin is normal In the upper and outer quadrant of the left breast there is a tracer ill-defined mass of tissue about 3 by 2 in., which is not tender to touch The liver and spleen are not enlarged. Some tapering of the index finger and thumb of each hand is evident, but the overlying skin is normal and there is no radiographic evidence of osseous disease A blood-count gave the following results:

Red cells ..	.. 3,180,000	Polymorphs .	41%
White cells .	3200	"Band" forms	15%
Hæmoglobin .	92%	Lymphocytes ..	29%
		Monocytes	4%
		Eosinophils .	1%
		"Squashed" forms .	[illegible]

SUMMARY

A case of Boeck's sarcoidosis with lesions in the cervical lymph-nodes, breasts, skin, and eye is described The eyes were affected by keratitis, uveitis, complicated cataract, and secondary glaucoma ultimately ending in phthisis bulbi Myxœdema became added to the clinical picture

We express our thanks to Dr. R. Bodley Scott for his advice about this case.

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ATMOSPHERIC AND SURFACE STERILISATION BY AEROSOLS

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Lister introduced the carbolic spray into the operating-theatre in 1871 After many years of controversy he abandoned it in 1887, not because he came to the view that air borne bacteria were unimportant but because he felt that his methods were inadequate In this he was justified, a concentration of phenol capable of sterilising air is quite intolerable to human beings

Air conditioning, and to some extent air filtration, represented in modern theatres the last heritage of Listerian technique until recently, when Hart (1938) introduced "bactericidal radiation" into thoracic surgery and believed that thereby he had lowered his level of operative sepsis The cocci of air, he believes, are the cocci of wounds, and many surgeons are of opinion that there is a risk of air borne infection in prolonged operations such as those on the thorax and cranial cavity

Although the surgeon was the first to appreciate the risk of air borne infection other branches of medicine have concerned themselves more intimately with the problem Scarlet fever streptococci have been isolated from the air of fever wards (Brown and Allison 1937), droplet infection is considered to be the main vehicle in respiratory infections generally, in some virus disorders, and in meningococcal meningitis tubercle bacilli have been isolated from the air of sanatoria The nursing of premature and marantic infants is often complicated by bronchopneumonia, and the causative organisms are probably derived from the respiratory tract of attendants Many research workers are inconvenienced by air bacteria Tissue culture and all cultural methods which involve the use of non autoclaved material would be much facilitated if work could be done in a sterile atmosphere In many industrial processes, too stray contamination from the air is a serious problem

The public is perhaps *a little more* disturbed about air borne infection than the medical profession Some attempt is often made to sterilise the air of cinemas and theatres by the use of small quantities of scented sprays Useless as this method is, it must be admitted that at any rate in times of epidemic respiratory disorder daily sterilisation of the air of places of amusement or public congress would be valuable

The methods of air sterilisation in common use are firstly, antiseptic vapours It is possible to obtain a sufficient concentration of a volatile antiseptic to kill bacteria in air Formalin is most often used for this purpose and is effective, so also is phenol vapour, if the phenol is volatilised at a high temperature Antiseptics so employed are either in a state of molecular dispersion in the air or as in the case of phenol exist as small suspended particles In both cases a concentration in air is required which no human being could tolerate even for a few seconds and some considerable time, probably an hour is necessary for effective sterilisation A second method is by means of ultraviolet light This is only effective in the area radiated, but the method lacks the objections of the first A third method, that of steaming the room, is sometimes used by bacteriologists, but in our experience is devoid of any effect

If it is agreed that air sterilisation is an objective worth pursuing, the requisites for an entirely unobjectionable method may be listed

(1) The method must be effective against all bacteria, particularly those affecting the respiratory tract

(2) The whole of the air of the room to be sterilised must be simultaneously treated

(3) The time taken to sterilise must be short

(4) The method should not render the room uninhabitable during sterilisation or afterwards, in other words, it must not in any way affect living human tissues

(5) The method should not affect the efficacy of culture media and the like

(6) The apparatus should be portable and the reagents inexpensive

PROPERTIES OF AEROSOLS

The introduction by Trillat (1938) of the conception of "aerosols" for the purpose of air sterilisation opens up a new field of bactericidal agents We have tested the claims he makes for his method, and can fully confirm his findings We consider that this method has already gone a long way towards satisfying the ideal specifications listed above, and that further modifications are likely to make it entirely satisfactory

The word "aerosol" is not a precise term, but it has a value as indicating the analogy between small particles suspended in air and colloidal solutions The method consists essentially of extremely fine atomisation of bactericidal solutions and this can be carried out by an apparatus known as the "Phantomyst" An electrically operated scent spray forces a jet of atomised fluid against the blades of a fan, which in its rapid rotation still further breaks up the droplets The emerging mist is forced against a series of baffle plates and the final product is of extreme tenuity If water is nebulised the resulting mist will not wet glass, if paraffin is nebulised it will not ignite The mist is highly persistent in an unventilated room definite traces remain in suspension after 48 hr Since many factors determine particle size no definite figure can be given, but the order of their size is 5 μ (fig 1)

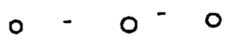


Fig 1—Diagrammatic representation of a bactericidal aerosol in contact with air borne bacteria The particles are actually separated by spaces of 100–200 diameters

Such a mist has interesting physical properties First and foremost is the large surface area of a small total concentration of antiseptic solution We find that 10 c cm of a certain antiseptic will sterilise a room of 2000 cu ft capacity In this there will be 150 000 million particles of antiseptic solution having a surface area of 118,760 sq cm The [illegible] of the particle depends upon a number of factors. The humidity of the room affects the particle size if the solvent is water; if a volatile solvent such as alcohol is used particle size is much smaller. If a hygroscopic fluid such as glycerin is incorporated atmospheric humidity will not be of such importance, and particle size may be altered by varying glycerin concentration Again, the incorporation in an alcoholic solution of a non-volatile solvent such as benzyl alcohol or xylenol-A serves to modify the final particle size (fig. 2) Surface tension is obviously an important feature, and this may be modified at will by surface-tension reducers such as sulphonated oleic acid or sodium lauryl sulphate (fig. 3). The nature of the surface is again modified by the presence in the solution of oils, which form monomolecular surface films, or soaps, which in the presence of traces of calcium may form surface films of insoluble soaps These last two factors render the aerosol ineffective (fig. 4).

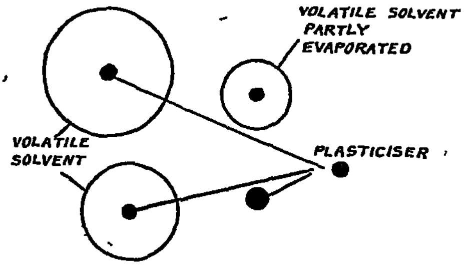
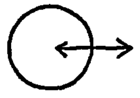
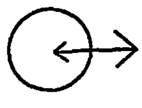


FIG. 2—Effect of a plasticiser—i.e , a small proportion of non-volatile liquid in aerosol mainly composed of volatile liquid such as benzyl alcohol or xylenol-A in ethyl alcohol.

There are obviously many factors limiting the use of antiseptics in this method. However, the important fact emerges that by this method any soluble antiseptic may be kept in suspension in air. This extends the field of air-sterilising agents beyond the volatile antiseptics It must also be stressed that each particle in the mist or aerosol has an initial concentration of antiseptic comparable to that of the antiseptic solution nebulised. When a room is filled with such a mist a lattice-work of antiseptic particles permeates the atmosphere. Each particle has a bactericidal concentration, and whether it is effective or not depends upon the nature of the surface of the particle and whether the particle does or does not make contact with the bacillus.



WITHOUT STR. FORCES BALANCED



WITH STR FORCES NOT BALANCED

FIG. 3—Diagrammatic representation of the effect of a surface-tension reducer on an aerosol particle

In our view the mechanism of aerosol sterilisation is of this kind, and the clearest distinction must be made between the effects of volatile antiseptics and of aerosols A volatile antiseptic must have a concentration in air of the same order as that effective in aqueous solution, but we have found that chloramine-T is effective as an aerosol in an atmospheric concentration of 1 in 12 million. Trillat suggests that the efficacy of aerosols is due to the fact that bacteria in air are themselves in a highly vulnerable condition, so that minute traces of antiseptic are effective. Total atmospheric concentration is not in question; the important factors are the antiseptic concentrations in each aerial particle and the nature of the surface of the particle (fig. 1).

The *total* atmospheric concentration of antisep becomes important, however, when we consider *effect on the human being* and on culture med Among the antiseptics which we have found of va are resorcinol and chloramine-T, and at the nece concentrations these do not affect the respirat tract or inhibit growth when plates are exposed t them. On the other hand, up to the present we hav not succeeded in finding an effective aerosol deve of visible mist and wholly devoid of smell It i possible to obtain an effective aerosol which i invisible Para-chlor-meta-xylenol in 50 per cen water, 45 per cent ethyl alcohol and 5 per cen xylenol-A *forms an aerosol of this kind*, but it ha an offensive odour The other effective aerosols hav a visible *mist and a slight odour*. We have worke in such mists daily for eight months, and have kep *mice in them*, without any deleterious effects, o indeed any observable effects at all. For many purposes the psychological effects of the mist and the slight odour (which is only experienced on first enter the room) may deter workers unnecessarily It i more than probable that further research will elabora an invisible and odourless mist, since the number o known antiseptics is legion.

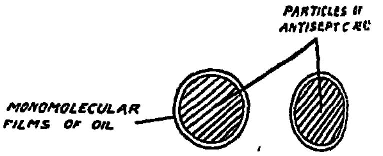


FIG. 4—Effect of addition of small quanti of oil to the antiseptic solution be nebulisation.

TECHNIQUE

In the majority of our experiments, numbering n all over a hundred, *Bacillus prodigiosus* has been us as test organism. A suspension in water is sprayed into a living-room through a throat-spray, so tha approximately 500,000 million organisms are s pended in the air. It is obvious that bacterial concentrations vastly in excess of any likely to occur under practical conditions have been used. All the experiments with this organism have been carri out in living-rooms, and controls have invariably been performed in rooms of similar cubic capacity—as a rule 2000 cu ft. *Staphylococcus albus* has als been used in living-rooms, but the pathogenic bacteria have been used in a special small chamber Thus o experiments have been strictly quantitative wit regard to antiseptic concentration only with *B p digiosus* and *Staph albus* In the other cases suc minute amounts of antiseptic are necessary tha figures are unreliable

The selected antiseptic is then nebulised and allowe to operate for variable times For one antisep 10 min was found to be entirely *effective*, this time 10 c cm of antiseptic solution is u Shorter periods certainly lower the number of colo grown but are not entirely effective.[1] The mi allowed to operate for 15 min after the nebulisat has ceased and plates are then exposed on the fl Again, shorter periods have marked a definite e but do not achieve full sterilisation The plates a then incubated for 48 hr. and the colonies a counted

It may be objected that this method doe count the bacteria in the air but only those that and that the mist might only maintain the organ a, suspension We have attempted to count the acteria by sucking the air through powdered sugar nd counting the colonies in cultures after dissolving he sugar in water By this means it was found that o colonies grow in the test rooms, on the other hand, ery few colonies grew in the control rooms In former xperiments on the bacterial content of air near refuse lumps we were led to doubt the efficacy of this nethod, which other authors have also criticised he only other method is with the air centrifuge, which we do not possess, and which has also been riticised Most authorities have recently used the pen plate method in their experiments

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[1] Recent experiments indicate that 2 5 c cm of the solution will sterilise 2000 cu ft of air

That the bacteria are killed and not kept in uspension is probable for the following reasons

(1) Plates exposed for 24 hr fail to grow any rganisms By this time the mist has very appreciably liminished

(2) Aerosols which are effective are rare Pure water erosols are useless, but 5 per cent aqueous chloramine s effective The addition of chloramine is not likely o keep bacteria in suspension Similarly, glycerin y itself is ineffective whereas glycerin and resorcinol s effective Here the same argument applies

It may also be objected that the aerosol may ondense on the culture plates thereby inhibiting rowth, but as has been stated earlier, plates exposed o the aerosols at their exit from the phantomyst or periods of 10 min or longer and then exposed o bacteria in control rooms show no inhibition of rowth Moreover, plate cultures exposed to the erosol can be readily subcultured

RESULTS

Water, glycerol, alcohol, acetone, 10 per cent Soluseptasine, lysol, Monsol, Dettol, and the sodium alt of ortho phenyl phenol are more or less ineffective The makers of the phantomyst market a solution nown as Aeryl which is completely effective against all he organisms we have used—namely, *B prodigiosus*, *Staph albus*, *Streptococcus hæmolyticus*, pneumococcus, nd *Corynebacterium diphtheriæ* Trillat states that t is effective against the influenza virus and nany other organisms The formula of this solu ion as stated by the makers is a supersaturated queous solution of resorcinol with glycerin We ave also found that 5 per cent chloramine-T, nade up according to a formula given below, is ffective Both these aerosols have a slight odour which is perceptible on entering the room and a ersistent mist They have proved quite innocuous n use over a period of months.

A solution of 0 5 per cent parachlor meta xylenol n 50 per cent water, and 45 per cent ethyl alcohol nd 5 per cent xylenol A, with 0 1 per cent sodium auryl sulphate, is effective, but the aerosol is most ffensive When benzyl alcohol is used instead of xylenol A the aerosol is inoffensive but also ineffective

The Rideal Walker coefficient of "aeryl" is 0 1 and hat of the chloramine T solution (described below) 0 02 At a dilution of 1 in 6 aeryl kills *B prodigiosus* n 5 min, at dilutions of 1 in 60 and over it is quite without effect[*] Therefore a concentration of these antiseptics 100,000 times smaller than that necessary n aqueous solutions is 100 per cent effective

STERILISATION OF SURFACES

An attempt has been made to make use of the properties of an aerosol for the purpose of the sterilisation of surfaces The problem was first presented in a practical form for the disinfection of civilian gas masks after use when there was a probability that infective material had been left after expired droplets had dried With this purpose in mind a series of experiments was devised in which pieces of rubber fabric, such as were used in the construction of the masks, were used for test surfaces A special chamber was constructed for the purpose of the tests and all experiments on surface sterilisation were carried out therein It consisted of a galvanised iron box containing two compartments The larger of these was the actual test chamber and was about 90 litres in capacity It was fitted with an airtight door containing a glass window The second chamber was just large enough to contain an apparatus capable of converting 1 c cm of liquid into aerosol in 1 min The aerosol was led directly into the top of the test chamber by means of a pipe and was redrawn into the smaller chamber through two small holes at the bottom of the partition This arrangement ensured an even distribution of aerosol throughout the test chamber

The general technique of the experiments was as follows —

A number of test surfaces (pieces of rubber fabric about 3 cm by 2 cm) were infected with a saline suspension of the test organism and were allowed to dry at a temperature of 37° C At the beginning of the experiment one of these was pressed on to a plate of appropriate medium and another was placed in a sterile dish and treated similarly at the end of the experiment This latter procedure was to ensure that the organism, when in the dry state was not destroyed by the time interval alone The remaining test surfaces were placed in the test chamber and the airtight door closed The nebuliser was operated until the required concentration of aerosol within the chamber was reached The test surfaces were removed from the chamber at desired intervals, and after any moisture had been allowed to evaporate under sterile conditions (which took place very rapidly), the test surfaces were pressed on to plates of medium in the same way as the controls Whenever the test chamber was opened for the purpose of removing a sample the nebuliser was operated for a period of 30 sec in order to compensate for the resulting fall in the concentration of aerosol

In the first instances such common disinfectants as formalin, lysol, Neomonsol, dettol, phenol solution and mercuric chloride solution were used for the production of aerosols It was found however that in every case but that of formalin little bactericidal action could be obtained unless the concentration of the aerosol was raised until the dew point was reached at which stage the test surfaces became flooded with a heavy deposit of the disinfecting liquid—a condition tantamount to painting on the fluid by means of a swab In the case of formalin very efficient bactericidal action was obtained with the aerosol but the method suffered from the disadvantage of the grossly irritant action of formalin aerosol which in the case of its practical application to gas masks, rendered the method useless owing to their retaining the irritant property for a considerable time after disinfection

An attempt was then made to evolve a new mixture the aerosol of which would have a similar bactericidal action to that of formalin without its highly irritant properties. A mixture was compounded of acetone, alcohol water and hydrogen peroxide but this was found to have but little effect It was however deemed possible that the addition of some substance which would reduce the surface tension of the liquid would possibly cause it to have some affinity for the infected surfaces, and in order to achieve this a small quantity (0 5 per cent) of sulphonated oleic acid was added to the mixture The effect of this addition was remarkable. If a test surface was infected in patches, and these patches allowed to dry prior to the exposure of the surface to the aerosol, it was found that after a short period of such exposure these patches had again become moist while the remainder of the test surface remained dry After being allowed to dry under sterile conditions such surfaces were pressed on to the surface of an appropriate medium and this was found to remain sterile. The optimum conditions for such sterilisation were found to be a concentration of 1 · 18,000 of aerosol (obtained by the operation of the nebuliser for 5 min. in which concentration the test surfaces were left for a period of 20 min

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[*] The chloramine-T solution is ineffective in dilutions greater than 1 in 2

This technique was found to be completely bactericidal to *B prodigiosus*, staphylococci, streptococci and pneumococci In the case of *C diphtheriæ* however no satisfactory bactericidal action could be obtained It was therefore necessary once again to modify the bactericidal mixture and to this end the hydrogen peroxide was replaced by chloramine-T (5 per cent)

This new mixture, referred to as "G M.2," was found to act efficiently under the conditions outlined above and was also found to be effective against *C. diphtheriæ* In all, the following organisms were found to be destroyed by the aerosol of "G M 2" when present on surfaces under the conditions described *B prodigiosus*, staphylococci, streptococci, pneumococci, *C diphtheriæ*, *Vibrio choleræ*, *Pasteurella pestis*, *B typhosus* and *B coli.* It was not found possible to destroy spore-bearing organisms such as *B. subtilis* entirely, though as many as 50–70 per cent of them were destroyed by this treatment

The action of the aerosol of "G M.2" was found to be efficiently bactericidal only when the infectious material had been allowed to dry If the test surfaces were exposed to the action of the aerosol while the infectious material was still wet the results were never uniform, probably because of the introduction of a dilution factor. Controls similar to those carried out with the aerosol of aeryl were made of the action of the "G M 2" aerosol on the surface of culture media Agar plates were exposed to the action of the aerosol in the test chamber and were subsequently sprayed with a suspension of test organisms Abundant growth of the organism was obtained It is important in carrying out this control that the concentration of the aerosol is not raised so high that the dew-point is reached, otherwise the surface of the plate will be flooded with liquid "G M 2," which will effectively render it non-nutrient The control was elaborated further by suspending test surfaces in the aerosol until such time as the bacteria were deemed to be destroyed and then immersing these pieces of rubber in broth In a high percentage of cases the broth was found to remain sterile

A plate culture of *B prodigiosus* exposed to the action of the aerosol of "G M.2" was shown upon subculture to be unaffected. A mouse subjected to the aerosol for a period of 30 min was not obviously affected nor were laboratory workers who remained in constant contact with the aerosol

A minimum number of three experiments was carried out with all the organisms listed above but in certain cases the number was larger. This included 12 in the case of *B prodigiosus*, 7 with staphylococci, 6 with streptococci and 8 with *C diphtheriæ*

Some of the experiments were repeated on other test surfaces, including glass, woollen cloth, metal, leather, wood (unvarnished) and paper It was found that, even if the concentration of the aerosol is increased and the time of exposure lengthened, as soon as any degree of porosity in the test surface was reached the efficiency of the method declined steeply The only bactericide which appeared to be effective under such circumstances was formalin Such surfaces as glass and metal could be treated with as great efficiency as rubber.

SUGGESTED APPLICATIONS

(1) Air-sterilisation of *operation theatres, cinemas, public halls, restaurants* and so on In all these cases the presence of a visible and odorous mist is likely to be to a greater or less degree a deterrent In operation theatres its use during operations would only be objectionable in a psychological sense but perhaps surgeons are not sufficiently impressed by the danger of air-borne infection to develop the method A compromise would be to fill the rooms in question with the aerosol, leave them filled for a period of one hour, and then to ventilate them and remove the mist This would at least ensure the intermittent sterilisation of the air, and might well be employed between "houses" at theatres. No residual smell remains when the mist is removed by ventilation.

(2) *Prevention of air-borne infections in dormitories* Epidemics of meningococcal meningitis and infantile paralysis are fortunately rare, but arise mainly in institutions when the inmates sleep in dormitories and infection is believed to occur there Less vital but of great importance are the other juvenile infections and influenza It might well be of great value to maintain the mist in suspension in the air during the night under such epidemic conditions; but here again intermittent disinfection would be better than nothing

(3) *Prevention of case-to-case infection in hospitals*.—In the event of serious epidemics of air-borne diseases such as influenza at its worst, this method should have great value Whether patients would learn to tolerate the mist and odour under less urgent conditions is a matter for experience Similarly the nursing of premature infants in such mists might be advantageous, on the other hand they might prove more sensitive than adults to the aerosol

(4) *Economic bacteriology.*—All industries dependent on bacteria, such as the butter, brewing and cheese industries, and all in which bacterial contamination from the air is a disadvantage, might well con this method, since it is not liable to transmit any disadvantageous taste or odour

(5) *Laboratory work*—The sterilisation of the air in media rooms and vaccine rooms is an obvious application

(6) Aerosols have also been adapted to the deodorisation of air and the killing of insects, including mosquitoes and bedbugs

(7) Surface sterilisation is possible by aerosols within limits; non-absorbent surfaces are also affected Even so, particular problems are likely to present themselves where the method has a use After the removal of all bedding and so on rooms might be sterilised up to a point after infectious cases The bacteria in large dust masses are unlikely to be affected

Our thanks are due to the staff of the pharmacology department of Westminster Hospital, to Mr H B, Dean of the college of the Pharmaceutical Society, for many helpful suggestions, and to Andro (Compressors) Ltd, for the gift of the Phantomyst apparatus

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ÆMATOMA OF THE FLEXOR TENDON SHEATHS OF THE HAND

FOLLOWING PENETRATING WOUNDS

By E A DEVENISH M S Lond F R C S
FIRST ASSISTANT IN THE SURGICAL UNIT UNIVERSITY COLLEGE HOSPITAL LONDON

Two cases seen at the whitlow clinic of University ollege Hospital presented a syndrome which I elieve to be due to hæmorrhage into the flexor endon sheaths of the hand The condition, though are, merits recognition, because it is likely to be istaken for infective tenosynovitis unlike which has a good prognosis I can find no previous account f it

THE TWO CASES

CASE 1—A male machinist aged 37, was admitted o hospital on April 18 1938, complaining of severe hrobbing pain, bad enough to keep him awake at ight, in the left thumb and wrist One blade of a air of scissors had penetrated the outer side of his humb near the distal flexor crease a day before dmission The wound had been dressed in casualty oon after its infliction

On admission his temperature was 97 4° F and ulse-rate 64 The fingers and thumb of his left hand were held semiflexed The fingers could be passively xtended, but not fully without pain at the wrist The thumb was more resistant to extension, it was mpossible to extend it fully and any attempt to do o caused severe pain There was slight swelling of he thenar eminence with tenderness along the almar aspect of the thumb and over the flexor endons at the wrist There was a small cut on the outer side of the thumb near the distal flexor crease There were no other abnormal physical signs

An unpadded plaster cast fixing the wrist and humb was applied and the patient was put to bed with the limb elevated Seven hours later he comlained of numbness of the index finger The plaster was removed and on examination there was slight ruising of the skin over the volar aspect of the wrist, complete anæsthesia of the left index finger to touch pinprick, and sense of position and impairment of ensation to touch and pinprick in the thumb and middle finger The limb was placed in a sling without a splint, and was again elevated.

Next day the bruising was more obvious, but the pain was less severe and slight sensation was returning o the fingers and thumb On the 20th the swelling and tenderness of the thenar eminence were less and the pain had vanished, but there was still slight tenderness over the volar aspect of the wrist On the 1st the thenar eminence was no longer swollen but it was still slightly tender and the bruising was most obvious on the ulnar side of the wrist just roximal to the head of the ulna Radiography of he hand and forearm failed to show any crack or racture of the bones The patient was discharged During his three days in hospital his temperature and pulse rate remained within normal limits

He was seen again a week after the date of the injury, when he had the full use of his hand Anæsthesia of the terminal phalanx of the index finger was still resent, but sensation in the middle finger and thumb was normal The bruising had practically disappeared and there was still slight tenderness of the palmar aspect of the thumb Five days later—i e , twelve days after the date of the injury—sensation in the index finger had returned to normal and the patient was passed as fit

It is possible that the incomplete median nerve esion which this patient developed was due to the plaster splint preventing swelling as the splint encircled the forearm to the wrist It is also possible, however, that the damage was produced by compression of the median nerve in the carpal tunnel, for such median nerve injury is rarely caused by a plaster cast even in cases of severe injury

CASE 2—A male metal reclaimer aged 37 was first seen at University College Hospital on Aug 17, 1938, when he complained of severe pain in the left hand, particularly in the thumb and little finger, and inability to use the hand He had cut himself with a piece of glass five days before receiving a penetrating wound on the palmar aspect of the thumb opposite the metacarpo-phalangeal joint He went immediately to another hospital, where the wound was sutured The day after the accident being Sunday he did not use the hand much, but he went to work on the next two days His thumb became increasingly painful and by the fourth day after the accident the pain was severe enough to keep him awake at night

On Aug 17 his temperature and pulse rate were normal The fingers and thumb of his left hand were held semiflexed Passive extension of the index, middle, and ring fingers caused pain at the wrist but these fingers could be fully extended Attempted extension of the thumb or little finger produced severe pain and full extension was impossible There was a small cut on the palmar aspect of the base of the thumb just opposite the metacarpo phalangeal joint, but there was no redness round the cut and no discharge from it The left hand and forearm were placed in a sling and he was sent home

On the 18th the thumb and thenar eminence, the little finger, and the volar aspect of the wrist were tender and slightly swollen Attempted passive extension of the fingers and thumb was still painful There was no bruising of the hand or wrist and no anæsthesia of any of the digits On the 19th the swelling had disappeared and the only abnormality present was painful limitation of passive extension of the little finger and thumb On the 24th the cut on his thumb was practically healed There was slight greenish discoloration of the skin of the volar radial part of the forearm just above the wrist There was no swelling, tenderness, or limitation of movement active or passive, of the digits and a radiogram of the hand and forearm showed no crack or fracture of the bones The patient was discharged

This patient was not admitted to hospital the only treatment given being rest of the limb in a sling and analgesic drugs His temperature and pulse-rate were never found raised and he was discharged fit twelve days after the receipt of the injury The bruising in this case was much less marked than in case 1, but it is likely that this was because the hand was never elevated and the blood in the tendon sheaths only slowly diffused out

DISCUSSION

The features of the syndrome in these two cases were (*a*) pain swelling, and loss of function in the distribution of the flexor tendon sheaths, (*b*) delayed bruising appearing where the sheaths are near the surface and dependent on posture, and (*c*) rapid recovery

To establish the suggested explanation of hæmorrhage into the sheaths it must be shown first that the site of the lesion was the flexor tendon sheaths secondly that there was blood in the tendon sheaths, and thirdly, that there was no acute infection of the tendon sheaths

The arrangement of the flexor tendon sheaths of the hand is briefly as follows The tendon sheath of the flexor pollicis longus extends from the [illegible] of the terminal phalanx of the thumb to a distance proximal to the transverse carpal ligament. The tendon sheaths of the index, middle, and ring fingers end in the palm at about the level of the metacarpal heads The tendon sheath of the little finger extends into the wrist as the common flexor sheath which often communicates with the proximal end of the sheath of the flexor pollicis longus Thus fluid entering the tendon sheath of the thumb may flow into the common flexor sheath and even down the flexor sheath of the little finger, according to the position in which the hand is kept. Further, owing to the depth at which the sheaths lie in the fingers and palm, the thickness of their walls in the fingers as compared with the relative thinness of the sheaths in the forearm, and their comparatively superficial position there, one would expect bruising to appear only in the forearm, and its appearance to be accelerated by elevating the hand.

That the site of the lesion was the thenar and common flexor sheaths is shown by the fact that the distribution of the pain, swelling, and tenderness and the limitation of function produced were identical with those found in acute suppurative lesions of these tendon sheaths The pain and swelling of the little finger in case 2 are explicable only on the supposition that blood had trickled down its tendon sheath This did not happen in case 1 probably because his hand was kept elevated for three days

That there was a collection of blood in the tendon sheaths is shown by the presence of a wound capable of providing a source of the blood and of opening the tendon sheath, the appearance of bruising at the wrist or forearm—i e, where one would expect to find it—and the absence of any other cause of the bruising—i e, a fracture

That there was no acute infection of the tendon sheaths is shown by the absence of a raised temperature or pulse-rate The rapidity with which the patients recovered also suggests that infection had not occurred

In both cases the mimicry of early acute suppurative tenosynovitis was close The chief points of differentiation were the absence of a raised temperature and pulse-rate and the swelling of the affected parts of the hand and wrist was less than one would expect with acute suppurative tenosynovitis. However, some cases with an uninfected hæmatoma of the tendon sheaths may be expected to have a raised temperature and pulse-rate, for hæmatomas elsewhere may be accompanied by both The appearance of bruising is too late to be of much use in making an early diagnosis, but its appearance may be accelerated by keeping the hand continuously elevated In doubtful cases the patient should be admitted to hospital and the hand elevated; at the end of 24 hours the diagnosis should be obvious.

Treatment should consist of resting the limb in a sling and giving analgesic drugs for the pain Splinting of the hand is unnecessary because the pain on attempted movement of the fingers will effectively keep them at rest

SUMMARY

A syndrome has been observed after penetrating wounds of the hand consisting of (*a*) pain, swelling, and loss of function in the distribution of the flexor tendon sheaths; (*b*) delayed bruising appearing where the sheaths are near the surface and dependent on posture; and (*c*) rapid recovery

The syndrome is attributed to hæmorrhage into the flexor tendon sheaths.

INTRODUCTION OF AN IODISED OIL INTO THE TRACHEOBRONCHIAL TREE

By Philip Ellman, M R.C.P

PHYSICIAN TO THE ST JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE, LONDON, CONSULTANT PHYSICIAN TO THE RHEUMATIC UNIT, ST STEPHEN'S HOSPITAL (L.C.C.)

Bronchography is now regarded as essential in the diagnosis and treatment of certain chronic pulmonary diseases Since it was first introduced by Sicard and Forestier in 1921 much has been learnt of the early stages of such diseases as bronchiectasis, pulmonary abscess and new growths, and it is extremely important that this procedure should be made available to general clinicians and not limited to specialists.

Various methods have been employed for the injection of the oily iodised solution—Lipiodol (Lafay) or Neo-hydriol (May and Baker)—*into the bronchi* (see Ellman 1932), but in my view they all have certain disadvantages from the point of view of *simplicity. Direct injection by the cricothyroid* route is an operation not altogether free from risk and not really suitable for out-patients. The oral route, *whereby after preliminary anæsthetisation* the oil is poured over the base of the tongue, often involves swallowing some of the oil. The intra*laryngeal route requires skilful use of the laryngeal* mirror and good anæsthesia of the laryngo pharynx. The bronchoscopic route requires a trained bronchoscopist.

The obvious way of approaching the tracheobronchial tree is via the commencement of the respiratory tract—i e., the nose. Franklin and Orley (1931) introduced a rational method of injecting the oil by a nasal catheter along the floor of the nose and into the larynx and trachea. This has the disadvantage of not infrequently inducing laryngeal spasm, and at the suggestion of my friend Dr Forestier I have adopted, and somewhat modified, a method first introduced by him which I have found to be much simpler.

TECHNIQUE

The iodised oil is injected directly into the nostril from an ordinary 20 c cm. syringe, no nasal catheter being required. Preliminary anæsthesia of the nose, pharynx, and larynx is usually advisable although I have obtained excellent bronchograms in coöperative patients without. When the tongue remains in its natural position in the mouth the hypopharynx is open and fluid can be readily swallowed (fig. 1). In this method the tongue is protruded and held firmly there by the operator or the patient, as in laryngeal examination. The whole of the larynx, including the epiglottis, is thus elevated, thereby closing the hypopharynx and keeping the upper end of the œsophagus closed. In this way the normal act of deglutition is made impossible A radiogram readily shows the oily solution dropping automatically into the small pouch of the hypopharynx and flowing over the brim into the larynx and trachea (fig 2)

The requirements for this method are of the simplest. Sensitivity to cocaine and iodine is first tested. A few days previously a hypodermic injection of cocaine, gr 1/10, is given and the pulse is taken at intervals of ten minutes for half an hour If there is no appreciable increase in rate and no faintness there is usually no abnormal sensitivity to cocaine. A mixture

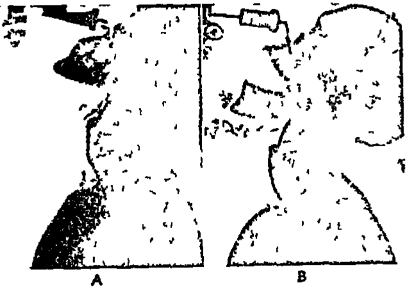

FIG 1—Radiograms taken with syringe in position A, with tongue in mouth, B with protruded tongue held

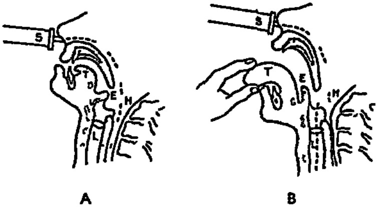

FIG 2—Diagrams illustrating fig 1 In A the oil injected into the floor of the nose is dropping down the open hypopharynx and into the œsophagus In B the hypopharynx is closed and the oil is flowing into the larynx and trachea (E=epiglottis, H=hypopharynx, L=larynx, S=syringe, T=tongue)

containing pot iod gr 5–10 is given daily for three days and if this is not followed by skin eruption or catarrh of the conjunctiva or nasal mucosa the patient may be assumed to react normally to iodine

The instruments required are a De Vilbiss spray No 15 and a 20 or 25 c cm syringe to which is attached a small nasal olive [1] which occupies the nasal orifice and prevents regurgitation of the oily solution A few c cm of equal quantities of a 10 per cent solution of cocaine hydrochloride and 1 in 1000 adrenaline are placed in the bottle of the De Vilbiss spray The oily solution is usually warmed to body temperature though better pictures are often obtained without heating the oil As a rule 20 c cm of the oil (10 c cm for each lung) is all that is needed, although as much as 20 c cm for each lung may sometimes be necessary The quantity is easily regulated by screen examination, to which this method readily lends itself

The patient sits in the upright position and is instructed to grasp the tongue firmly This position is maintained throughout The nostril with the freest airway is chosen and is sprayed several times with the cocaine adrenaline solution The back of the tongue and the pharynx and larynx are then similarly treated After an interval of 5–10 minutes the warm oily solution is injected from the 20 c cm syringe To fill the lower lobes the patient remains seated with the head thrown back and the body well tilted to the affected side Tilting is especially necessary in the case of the left lung, since the right bronchus is in more direct line with the trachea To inject the upper and middle lobes the patient lies on his back on the X ray table—a tilting table is preferable though not essential—with the opposite shoulder well raised by one or more pillows, and is

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[1] The special syringe and nasal olive have been made for me by Messrs Allen and Hanbury

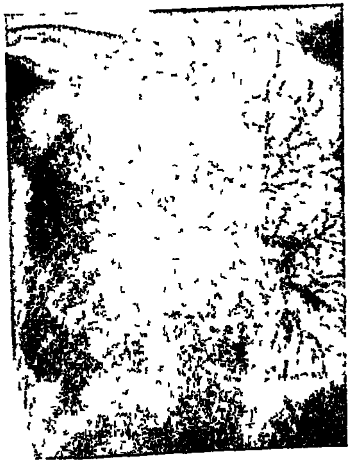

FIG 3—Bronchogram showing blocked bronchus on right side characteristic of bronchial carcinoma, and normal bronchial tree on left side

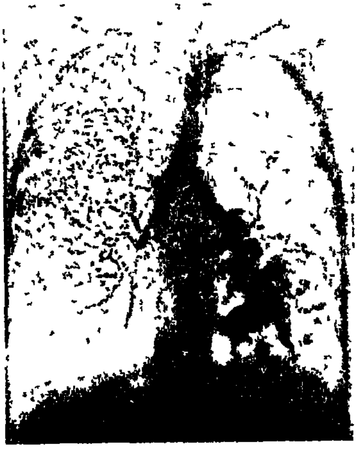

FIG 4
Bronchogram showing saccular bronchiectasis of the left lower lobe

tilted to the right or left according to the lung being treated

For successful results the complete cooperation of the patient is essential and I find that a preliminary explanation of the whole procedure best secures this end. In a highly nervous patient a sedative such as heroin, gr 1/8, might be given half to one hour before the injection While the oily solution is being injected the protruded tongue must be firmly held to prevent deglutition, and the patient must be instructed not to cough until the photographs have been taken During the whole of the operation the patient should be encouraged to breathe naturally and quietly. Before taking photographs I usually screen the patient to ensure that the area under observation is adequately filled Photographs are usually taken with the patient erect in the antero-posterior and lateral positions, although it is sometimes necessary to take them also in the recumbent position.

I have now used this technique in some 50 c with almost invariably good results (figs 3 and The whole procedure takes little more than 1 minutes; the apparatus required is simple and t technique is such that any practitioner, observing th precautions here outlined, can soon learn to ob satisfactory bronchograms.

SUMMARY

A simplified technique is described for introdu an iodised oil into the tracheobronchial tree b direct nasal injection under local anæsthesia. Th method causes the patient the minimum of d comfort. No special apparatus or skill is requ and the method is suitable for the general clinician.

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MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTION OF RADIOLOGY

AT a meeting of this section on Feb 17, Dr H K GRAHAM-HODGSON, the president, being in the chair, a discussion on the

Radiology of Acute Respiratory Diseases

was opened by Dr PETER KERLEY. He began by pointing out that for the radiological examination of these diseases a portable apparatus was generally essential and as the films were not infrequently taken in an emergency by laymen and passed on to radiologists to interpret, it was important to lay down practical rules for the technique of portable apparatus He believed that there was nothing to be gained by making the work elaborate The less fuss and bother there was in the room and less formidable the apparatus looked the better for a patient who was grievously ill Fine detail was rarely required and speed was important if not vital A working distance from two and a half to three feet was ample He laid stress on careful screening and his usual procedure was to let the patient lie back against the screen in the sitting position When the shadow of a consolidated base merged with that of the diaphragm or when the respiration-rate was too high or the patient too ill or too young to coöperate a screen examination might be decisive. For this work he believed the manufacturers had made a mistake in making portable sets too portable and thereby restricting screening facilities With regard to films his advice was to take plenty and always to over-expose or over-penetrate two, since these would be the pictures on which fluid or consolidation might be differentiated. Again, the radiologist should never leave the room without taking a lateral view.

The best-recognised though not the commonest acute respiratory disease in childhood the speaker considered to be miliary tuberculosis It was not possible radiologically to determine the method of spread, but the usual appearance in infants up to nine months or so in age was a fairly large caseating pneumonic area in one lung with widespread dissemination of fairly large round foci all over both lung fields; whereas in older children and in adults there was a widespread infiltration of millet seed or larger shadows but seldom a pneumonic area He believed that only three of the recorded cases of recov satisfied the essential diagnostic criteria. The path logical significance of difference in size of the individ lesions was not clearly established, but he did n believe that the finer and more discrete the lesion t better the outlook as had been stated by so authorities With regard to pneumonia in childr broadly speaking infants tended to exhibit local tion to the paravertebral sulci and older childr a more diffuse type of shadow The domina feature in infants was a dense homogeneous opac with a well-defined outer border running para to the mediastinum and extending from apex base, usually some two inches wide The homogene of the shadow, the sharp outer border, and distribution transgressed the lobar divisions of lung, and indicated a mediastinal effusion wh appeared to be a frequent complication of p vertebral pneumonia in young children. Betw the ages of 2 and 10 two types of bronchopneum could be recognised In one the foci were larg ill defined and might coalesce but did not extend the root of the lung as in lobar consolidation, the other the foci were sometimes referred to miliary bronchopneumonia and appeared to common following measles The X-ray appear of bronchiolitis were not well known and in v of the probability of the congenital cystic natur the condition the term bronchiolitis should abandoned, as should bronchiolectasis The c plications of bronchopneumonia and lobar p monia in children were collapse and fluid former could be detected by the abnormally position of the interlobar fissure, the opacity of lobe and the displacement of the mediastinum to diseased side With fluid, it was not possib determine by the radiogram whether the fluid purulent or not; all one could do was locali collection. In young children mediastinal effu were frequent, whilst in older children the ord axillary type was commoner Occasionally a lam effusion was seen with a very thin pleural line run up the outer border of the chest wall, and amount of fluid might be larger than the X appearance suggested. The picture of interl collections of fluid resembled that in adults Em mata occurred in odd situations and might be looked, and sometimes pseudo-cavities, due, speaker suggested, to acute vesicular emphy urred both in lobar and bronchopneumonia in dren All these conditions were difficult even a skilled radiologist to interpret and radiograms en by a layman and interpreted by a general ctitioner could lead to disastrous results Ring dows or pseudo cavities in radiograms of lobar umonia had been described of recent years They been regarded by American writers as areas of ptic or aputrid necrosis Rabin regarded them lue to an arteritis with thrombosis and subsequent rction in the centre of the pneumonic area

Kerley emphasised the fact that they were a ely radiological discovery and had never been firmed post mortem He suggested that they ght be due to delayed resolution following collapse a large segment or of a lobe Emphysema was a ural reaction to collapse and there was no reason y over distended lobules should not contain fluid els

Dealing with influenzal bronchopneumonias the aker regretted that we had no reliable X ray ords of the last great pandemic of 1918–19 In re recent epidemics the radiological appearances gested an area of intense hyperæmia with small sized foci of consolidation not tending to coalesce the 1936–37 epidemic he saw some 40 cases and left base was affected three times more often n the right Recovery followed in all but one e Postoperative chest complications for which radiologist was consulted were generally collapse d infarction Collapse showed a homogeneous acity with a sharp edge but in infarction there was well-defined margin and clear vascular markings re very obvious and in thrombosis the affected ssels did not change in different phases of respira n The thickest part of the vessel lay at the apex the infarct Tomography he believed to be perior to all other methods of investigation in lung ppuration Not only did it reveal the site of the scess cavity but it showed the calibre and site of e drainage bronchi In pulmonary hæmorrhage haled blood might be spattered into alveoli exactly e Lipiodol In conclusion Dr Kerley cited a all group of cases of lesions of the bony thorax ulating acute chest conditions The paper was ustrated with a series of lantern slides

Dr F G CHANDLER followed with a short per from the standpoint of the physician He lieved that the time had come when the great value the portable X-ray plant in hospital and private actice could be fully demonstrated Inflammatory eas, infarction, with their distribution, partial eumothoraces, massive collapse, interlobar effusions, ep seated abscesses focal atelectasis and many her conditions could be brought to light by its use nd not least of all, the earlier diagnosis of pulmonary rcinoma was becoming possible, especially in those ses in which it lay at the root of pulmonary suppura on, and other acute conditions During the last rtnight he had seen four cases of acute febrile nditions where the diagnosis was in doubt but hich might be labelled severally pleural effusion, electasis bronchiectasis and pneumonia with a dden shift of the mediastinum to the affected side, t in each one of these cases there was a strong spicion of a carcinoma as a basic cause In all us the taking of an X ray in a very sick patient might ove an exhausting procedure The picture should taken with the patient propped up by pillows in e half recumbent position to allow of fluid levels ing demonstrated It must be absolutely square ith the position of arms and legs symmetrical he cassette should then be slipped behind the patient and the tube orientated appropriately Although this gave a posterior view when we would rather have an anterior it was easier for the patient A true lateral view with the patient lying on the affected side, again *half-recumbent only* was much more difficult for all concerned, but it was often an essential piece of evidence and must be aimed at Oblique views, in his opinion, added little of value in these acute diseases In conclusion the speaker showed a number of lantern slides illustrating these points

A short discussion followed in which a number of practical points were emphasised Dr E W TWINING spoke of the value of the oblique view and discussed the relationship of the ring shadows and acute vesicular emphysema —Dr C G TEALL thought that the portable apparatus though very valuable did not always permit of fast enough exposures for children and in hospital it was sometimes best to take the child down to the X ray department in its cot Sometimes in taking a lateral view it was better to shift the apparatus rather than the patient

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ASSOCIATION OF CLINICAL PATHOLOGISTS

A MEETING of this association was held at the National Hospital, Queen Square, London, on Feb 1, with Dr J G GREENFIELD, in the chair A discussion on the diagnosis and treatment of

Streptococcal and Pneumococcal Infections

was opened by Dr V D ALLISON speaking on the grouping and typing of streptococci He began by pointing out the importance in midwifery practice of being able to differentiate those hæmolytic streptococci that produce definite puerperal infections from those occasionally found as saprophytes in the genital and upper respiratory tracts Lancefield has shown by chemical analysis that β hæmolytic streptococci of human origin contain immunologically differentiated substances—namely, (*a*) a type specific protein, M, which distinguishes types conforming with the results of agglutination tests (*b*) a non specific nucleo protein, P, which gives cross precipitin reactions with similar substances from *Str viridans*, pneumococcus and staphylococcus, (*c*) a non type specific carbohydrate, C, upon the nature of which the classification of hæmolytic streptococci into groups by the precipitin reaction is based Nine groups, A, B, C, D E, F, G, H and K, had been described by Lancefield and by R Hare and more recently two further groups, L and M, had been added by Fry and T Hare Members of group A (*Str pyogenes*) are by far the most important from the standpoint of the clinical pathologist, for they are those most likely to cause serious human infection and are of considerable epidemiological significance Statistics show that upwards of 97 per cent of strains of hæmolytic streptococci from human infection belong to group A Biochemical and other tests do not differentiate hæmolytic streptococci, but the Lancefield test enables the pathologist to recognise pathogenic and potentially pathogenic strains with considerable precision and makes it possible to eliminate as non pathogenic many strains found in the upper respiratory tract fæces and vagina Griffith has shown by serological analysis that strains belonging to group A comprise a number of well defined types identified by agglutination with specific sera Some 26 types have been identified and no one type is exclusively associated with a characteristic syndrome. Serological typing is of considerable value in tracing the sources and spread of group A infections, but is not yet a routine laboratory procedure

STREPTOCOCCI IN RELATION TO PUERPERAL FEVER

Dr. R M Fry said that hæmolytic streptococci are much the commonest cause of severe puerperal infections He considered that Lancefield's method of grouping is one of the most important advances in the work on hæmolytic streptococci This method has been used as a routine at Queen Charlotte's Hospital for nearly three years, and during this period over 90 per cent of severe and moderate infections have been due to group A streptococci—which according to evidence collected by Lancefield and Hare are not normally inhabitants of the female genital tract Four group B infections, all fatal, included three cases of endocarditis and one of subphrenic abscess and liver abscesses. Among seven group C infections six were fatal; one was a case of endocarditis, and was a pure infection, but the rest were all mixed with other organisms which certainly contributed to the severity of the disease Five group G cases, of which three were fatal, were all mixed infections Dealing with the diagnosis of hæmolytic streptococcal infections in the puerperium, Dr Fry pointed out that group A infections generally show a heavy, nearly pure culture from the genital tract If only a small number of hæmolytic streptococci, mixed with many other organisms is seen, it is wise to suspect some other group. He laid stress on the importance of the soluble hæmolysis test, especially if grouping is not done, for by this means a rough guess can often be made as to the group, with the help of colonial differences Anaerobic cultures, he thought, should always be put up, because of the occasional tendency for a hæmolytic streptococcus to appear as a green streptococcus in aerobic culture This is especially noticeable with group A, although other groups sometimes show the change He concluded with a brief description of the anaerobic streptococci found in puerperal fever, and said that these organisms accounted for 6–8 cases of septicæmia each year at Queen Charlotte's isolation block. They are sometimes difficult to isolate, for they grow slowly and are very intolerant of aerobic conditions Although they are apparently a mixed group of organisms he thought that those concerned in fatal infections are probably closely allied, since the anatomical changes are very similar in all these cases

STREPTOCOCCAL INFECTIONS IN INFANTS

Dr. A. G. Signy pointed out that immunological reactions in infants differ from those of older children and adults He instanced immunity of infants to many exanthemata, due to passive immunity. Although some immune bodies derived from the mother last only one or two weeks, others—like the scarlet fever (Dick) antitoxin and the diphtheria antitoxin—are known to persist as long as six months. In discussing upper respiratory infections of infants Dr. Signy spoke of the theory of middle-ear infections as the cause of infantile diarrhœa and vomiting. He said that in 70 post-mortem examinations on infants under one year, of whom more than half had died of primary or secondary diarrhœa and vomiting, pus was found in one or both ears, proving that aural infection is a very common terminal infection in babies In septicæmia a higher mortality is found in staphylococcal cases in infants, but in older children the mortality is higher in streptococcal infections. Discussing the sequence of events in streptococcal infections of the nasopharynx in older children Dr. Signy pointed out that a long latent period may elapse between an infection and a subsequent nephritis or attack of rheumatism. He referred to the few proven cases of streptococcal erythema nodosum, and ended with a plea that all who have to deal with infants should wear efficient masks, composed of cotton-wool between two layers of gauze

EPIDEMIOLOGY OF STREPTOCOCCAL INFECTIONS

Dr. F. E Camps (Chelmsford) read a paper on the epidemiology of streptococcal infections with special reference to scarlet fever. In assessing the epidemiology of streptococcal infections, he said, all diseases due to the organism must be taken into consideration. Infections of the same type may or may not produce a rash, according to the immunity of the patient to the Dick toxin and/or the toxin-producing power of the particular strain of *Str pyogenes* (group A), hence scarlet fever is merely a syndrome. The mode of spread is chiefly by droplets and by the hands, utensils, toys and food. Dr Camps went on to outline particular types of epidemics, discussing those occurring in hospitals, cross-infections in fever hospitals, outbreaks in schools, infections in the community and milk-borne infections In conclusion he said that the control of the disease depends on the appreciation of the various manifestations of infections due to *Str. pyogenes;* these are really the same diseases, whether there is a rash or not, and as a rule the infection is originally spread by droplets He suggested that future progress depends on the discovery of some form of active immunisation.

STREPTOCOCCAL INFECTIONS AND RHEUMATIC DISEASES

Dr. Sinclair Miller (Harrogate) confined his observations to rheumatic fever, rheumatoid arthritis and osteo-arthritis This last, he said, would be rapidly dismissed, for the joint changes were largely the results of degeneration and trauma, not of infection. He accepted a streptococcal origin for rheumatic fever, but said that the type of streptococcus involved and the mode of action are still shrouded in mystery. He regarded the hæmolytic streptococcus as the most likely causal agent but emphasised the occurrence of three phases in the development of the attack, namely, an initial infection in the throat or upper respiratory tract, a silent period of apparent recovery and finally the onset of rheumatic fever. During the silent phase there are changes in the [illegible] immunity which allow the development of the rheumatic attack. As regards rheumatoid arthritis the consensus of opinion favours a streptococcal *infection as the causal agent, though many claim that tissue sensitivity plays an important part* Dr. Miller pointed out that rheumatic fever and rheumatoid arthritis have many factors in common, including a preceding infection of the upper respiratory tract and similar streptococcal immunological reactions. It is impossible, he said, to assess the exact pathological significance of these various findings; he suggested that judgment should be reserved but investigations should be continued energetically and critically without attempting, at present, too [illegible] *interpretation of the results*

TREATMENT

Dr. L E. H. Whitby gave a short account of the sulphonamide compounds available for clinical use, and indicated their range of activity and efficiency. Early bacteriological diagnosis is important, not necessarily as a prelude to immediate emp eatment but for the rational control of treatment hen the infecting organisms have been definitely entified The main principle to bear in mind when ing sulphonamide drugs is that the appropriate rug must be absorbed into the blood stream in n effective concentration and that this concentra- on must be maintained for a reasonable period linical pathologists must be prepared to estimate the oncentration of these drugs in the blood and spinal uid, and Dr Whitby described a number of methods r the purpose The choice of compound for a articular case is a matter for experience and judgment s a general rule the oral preparations have the lvantage of being well absorbed, and of maintaining steady concentration in the blood Soluble prepara ons are quickly absorbed but quickly excreted; their se demands numerous and frequent inoculations hey are useful however for beginning treatment nd for supplementing oral preparations where bsorption is poor and they are obligatory when ausea and vomiting prohibit oral administration

Methæmalbumin (Pseudomethæmoglobin)

Dr N **Hamilton Fairley** outlined the investiga ons leading to the synthesis of pseudomethæmo lobin—a pigment which he and Bromfield first ecognised in the plasma of patients suffering from lackwater fever, and which they have recently emonstrated in incompatible blood transfusion, octurnal hæmoglobinuria and fluid from pancreatic ysts It was first found that pseudomethæmoglobin ppeared within forty eight hours when hæmoglobin as incubated at 40° C with human and simian lasma, but not with plasma of other animals Later was discovered that pseudomethæmoglobin was roduced when alkaline hæmatin was added to uman and simian plasma but not to that of other nimals In serum protein fractions prepared by Rimington from man and monkeys (*Macacus esus*) pseudomethæmoglobin was produced with he albumin fraction, but not with the pseudo lobulin or euglobulin fraction When alkaline æmatin was added to the different proteins contained n the albumin fraction of human serum—i.e., cryst- lbumin, globoglycoid and seroglycoid prepared by F Hewitt—pseudomethæmoglobin was formed nly from crystalbumin In view of these findings nd the general similarity in chemical behaviour o methæmoglobin, pseudomethæmoglobin has been ecently renamed "methæmalbumin" Finally, in oth man and monkeys methæmalbumin produced y the intravenous injection of alkaline hæmatin was ound to be present in the albumin fraction It roved to be identical with the methæmalbumin recipitated in the albumin fraction of human serum erived from a patient suffering from hæmolytic næmia and splenomegaly Methæmalbumin is ever formed within the corpuscles, said Dr Fairley, nd cannot function as a respiratory pigment It s derived from circulating extracorpuscular hæmo lobin and when present in plasma affords a new ndex to intravascular hæmolysis During the extra ellular katabolism of extracorpuscular hæmoglobin, æmatin is produced; this unites with human and imian albumin to form methæmalbumin, the molecular ize of which renders it impermeable to the kidney For this reason it never appears in the urine

The Xenopus Pregnancy Test

Dr E R **Elkan** gave an account of his experiences with the xenopus pregnancy test and said that in his pinion this test has not received the attention it eserved Independent observers in South Africa, London, Edinburgh, and Aberdeen have carried out many tests with this animal and had found that it had many advantages Xenopus (the S African toad) has been a "pathologist's pet" since Hogben in 1930 discovered that the ovulation mechanism in these batrachians is highly sensitive to the injection of anterior-pituitary extracts, or to pregnancy urine containing gonadotropic hormone The reaction time depends on the temperature at which the animals are kept It is quite easy to get reliable results in the course of one night The eggs laid are easily visible with the naked eye The animals, after a resting period of about one month, can be used again They are easy to obtain and easy to keep and to feed They are difficult to breed, but these difficulties could be overcome if suitable aquariums were used Pregnancies can be tested with this method as with the Aschheim-Zondek or Friedman method as soon as there is a sufficient output of hormone in the urine Since the laboratory does not always get exact data on the duration of the suspected pregnancy two precautions ought to be taken Firstly, urine extracts only should be tested, and secondly, patients should be told to have as little fluid as possible the day before collecting the urine Dr Elkan said that in a series of 360 tests done on 2201 frogs he had not seen one wrong positive Negatives may have to be repeated if the first test is done too early Landgrebe has recently reported on a series of 279 tests where comparisons were made with the Aschheim Zondek technique There were only 6 discrepancies The xenopus pregnancy test in Dr Elkan's opinion seems to be as reliable as can possibly be expected of any biological method

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MANCHESTER MEDICAL SOCIETY

At a meeting of this society on Feb 1 a paper on

Breathing Machines

was read by Prof L J **Witts** (Oxford)

No one, he said, could pretend that the best solution had yet been found of the problem of prolonged artificial respiration and the organisation of apparatus for this purpose Few people in this country could have any extensive practical experience of these problems and it was therefore most important that such experience as was available should be collected and collated The subject of artificial respiration apparatus had been much in the news of late owing to the epidemics of poliomyelitis in Australia and Great Britain and to Lord Nuffield's offer to supply a Both apparatus to any hospital with over 100 beds Names such as "iron lung" or "wooden lung" were not sufficiently comprehensive and to avoid confusion with other forms of respiration apparatus and respirators Dr Edgar Schuster had suggested the name "breathing machines"

These machines had been classified under the headings of methods involving complete enclosure of the patient's body such as the Drinker and Both machines methods involving partial enclosure of the patient such as the Bragg Paul Pulsator the Burstall jacket and the Biomotor methods depending on variations in the posture of the patient, such as the Eve tilter, and methods of insufflation such as the McKesson and Oxford respirators (By permission of Prof R R Macintosh Prof Witts showed a film made in the Nuffield department of anæsthetics which illustrated various types) Machines could also be classified according as they exercised positive or negative pressure on the chest wall but these terms were often confused when applied to insufflation Moreover, in some machines, such as the Drinker and Laffer-Lewis modification of the Burstall cuirass, both positive and negative pressure could be applied. The relative merits of positive and negative pressure were still unsolved Nature abhors a vacuum and all negative pressure methods were fraught with inherent difficulties in the nursing of the patient and the application of the machine Positive-pressure methods offend the physiological conscience, and are too often condemned on a-priori reasoning

Current statistics, said Prof Witts, were hardly worth analysis and it was impossible to compare the more optimistic data with the grim figures from America, where 60 per cent of the patients died in the Drinker, and half the remainder were dead in eighteen months' time What was urgently needed was the assessment of different methods on similar clinical material by the same observer Another vexed question was the value of breathing machines for acute emergencies such as drowning, poisoning and electric shock There was a risk that they might do more harm than good if people interrupted the well-tried manual methods of artificial respiration to fiddle about with unfamiliar apparatus.

ROYAL ACADEMY OF MEDICINE IN IRELAND

At a meeting of the section of surgery on Jan 13, with Mr R Atkinson Stoney in the chair, Dr. Oliver Chance and Mr. F. J Morrin presented a report on

Carcinoma in the Buccal Cavity

Dr Chance pointed out that buccal cancer is relatively uncommon, roughly 200 cases being seen yearly in Eire. From 1930 to 1936 he had kept notes of 539 cases, most of which were far advanced when first seen. In treating the primary growth, radiation therapy, usually by the implantation of radium needles, was preferred, but in a limited number of cases surgery was indicated The treatment of the glandular field was primarily a surgical problem, but when surgery was out of the question radiation, particularly with deep X rays, had its uses As intensive radiation was comparable in its severity with major surgery, considerable responsibility rested on the radiologist; he had to decide whether to push treatment to the limit, in the hope of effecting a cure, or to aim at palliation. Dr Chance described the methods of keeping notes and of following up cases in use at St. Anne's Hospital, and reviewed the results obtained in the 178 cases treated more than five years ago These showed an absolute survival-rate of 13 5 per cent., a crude survival-rate of 15 7 per cent, and a net survival-rate of 18 8 per cent The importance of early diagnosis and early treatment was illustrated by the fact that when glands were not palpable 27 3 per cent of patients survived five years, whereas when they were palpable and operable only 6 5 per cent survived A very grave responsibility rested on the doctor or dentist who first saw the case Unfortunately some seemed to be unaware of the awful results that followed procrastination.

Mr Morrin said he was satisfied that in the treatment of the primary ulcer radium therapy had displaced surgery, and he thought in time to come it would probably be used throughout At the moment, however, block dissection of the glandular areas gave the best prognosis The operation he performed was either a bilateral submaxillary dissection or a unilateral complete dissection from the clavicle to the base of the skull, depending upon whether the upper deep cervical glands were enlarged or not

The Chairman said his first recollection of buccal cancer was forty years ago, when as a student he had seen a surgeon remove half the tongue Kocher's submandibular excision simply opened up a large space of infection, though soon after the late war he had found that with B I P P. it was possible to get a more or less primary closure of the neck wound With regard to modern methods, an important question was the order of treatment Was it better to first irradiate the primary growth, or should one first remove the cervical glands?

Dr. R R. Woods said that the problem of buccal carcinoma was primarily a problem of secondaries. It was therefore desirable that both the public and the medical profession should be educated as to the absolute necessity for early treatment

Mr J H Coolican also emphasised the need for early diagnosis and said that attendance at radium centres should be made compulsory for all students In his experience very little shock was produced by gland dissections largely thanks to the use of intratracheal anæsthesia

Mr. T. A Bouchier-Hayes said that at present students seldom saw these cases till they had reached an advanced stage. They should be given plenty of opportunity for seeing early cases

Mr A. B. Clery commended the very fine follow-up system in use at St. Anne's Hospital As regards anæsthesia for cervical dissections, he himself used Avertin preceded by scopolamine, and combined with local anæsthesia.

Dr J. M Brady mentioned the value of contact therapy as compared with interstitial radiation. He had found this treatment very satisfactory

Dr. T J Gilmartin said that for gland dissections he preferred intratracheal gas and oxygen to local anæsthesia, especially in debilitated and nervous patients.

Mr. J C Flood said that the reaction of carcinoma to any treatment depended upon the nature of the growth and its grade of malignancy He thought it desirable that these growths should be graded before treatment began.

THE LANCET 100 YEARS AGO

February 23, 1839, p 813.

From an account of malaria given by Dr Addison at a meeting of the Westminster Medical Society

Look, too, at the absurd situations in which our aristocracy built their mansions The houses of Sir R Peel and the Duke of Buccleugh faced the river, looking upon the mass of mud left by the receding tide. He could not believe that these positions were harmless, or that the individuals residing in them escaped entirely from the effects of the miasma It must not be forgotten that these aristocratic tenants were free from the hardships and exposures which, in the poor, led to the full development of miasmatic poison, and hence the escape of the former from its more fearful effects Look at the mansion of the Duke of Northumberland, at Charing-cross, the only open front of which faced the river; while the opposite side was well guarded from the entrance of any breezes from the north or west But the situations of all these places were nothing compared to the site of Buckingham Palace Dante, himself, when writing the "Inferno," would have been pleased with the view of this miserably situated edifice, as taken from Piccadilly by twilight, the lamps flitting in the perpetual fog, like so many evil spirits On a beautiful morning when all around was bright, Buckingham Palace was enveloped in fog and smoke

REVIEWS AND NOTICES OF BOOKS

Syphilis, Gonorrhœa and the Public Health

By NELS A. NELSON, M D, F A P H A, director, division of genito infectious diseases, Massachusetts department of public health, and GLADYS L CRAIN, R N, epidemiologist in the division London Macmillan and Co 1938 Pp 359 12*s* 6*d*

Dr Nelson's forceful opinions and his outspokenness on the subject of the venereal infections have exercised an important influence on methods devised for the control of these diseases in the United States, and his views are here set out in a readable fashion The authors believe that the first step in a successful programme of control is to re educate the public and the medical profession to look upon these diseases as illnesses rather than evidence of sexual misbehaviour They deplore the use of the traditional term "venereal," which to most minds connotes lasciviousness, and suggest that the word "genito infectious" should be substituted

The early chapters of the book deal with the diagnosis and treatment of syphilis and gonorrhœa, and are necessarily limited in scope since the book is intended for nurses, social and public health workers and the general public as well as medical men Nevertheless they are fully adequate to enable the reader to appreciate the inherent complexities and difficulties, which are without parallel in other branches of public-health work. The remaining chapters review all aspects of the control of these diseases in the light of a far seeing comprehension of the issues involved and a wide practical experience Dr Nelson believes that notification is an essential part of the programme for control, since the health officer must know, if he can, what his programme is accomplishing and he must be able to keep the public informed Practical suggestions are made for forms of notification which are, as he puts it, so simple, so available, so easily filled out and so conveniently returned that the physician will be willing to send them in, and which do not require the identity of the patient to be disclosed On the other hand, compulsion is held to have no important part in case control, for real success is only possible with the patient's coöperation, in the attainment of which sympathy and understanding is more effective than the strictest regimentation

Altogether a timely book

Science and Art of Joint Manipulation

Vol I The Extremities By JAMES MENNELL, M D Camb consulting physiotherapist, St Thomas's Hospital, London London J and A Churchill 1939 Pp 233 18*s*

Dr Mennell set himself a difficult task when he started out to describe in words and photographs the complicated movements he has evolved in the manipulation of joints The ideal medium for such description, as he has himself discovered is the cinematograph film, and the talkie film at that Nevertheless this book is definitely a success

The manipulator soon learns that each joint in the body needs an individual approach Whereas early movement to an injured shoulder joint may obviate months of painful treatment to rid it of adhesions, the same technique with an injured elbow joint may be disastrous Dr Mennell prefaces his descriptions of manipulations by a careful account of each joint and in particular of the opposing articular surfaces He then goes on to show the range of movement between the joint surfaces which, not being under voluntary control, can be performed only passively by the manipulator The value of restoring this range is convincingly demonstrated in the effect of limitation of downward gliding of the head of the humerus on the glenoid in impeding abduction and flexion of the shoulder joint He next deals with the movements under voluntary control and their restoration Where little good is likely to result from manipulation the author says so for example, in the chronic deformities of the foot produced by faulty footwear, where the extensor tendons through long displacement have become insufficient In his introduction the author defines the aims of manipulative surgery and—very fairly—its relation to osteopathy and the like Although primarily intended as a textbook for massage students the book deserves to be read by all who are interested in the restoration of full function after injury

Nelson New Loose-Leaf Medicine

Renewal pages London Thomas Nelson and Sons 1938

THE chief adverse criticisms that could be levelled against the Nelson New Loose Leaf Medicine when it appeared in 1937 were that some out of date sections had been retained from the original work issued in 1920 and that the abstracts of current literature were rather inadequate The renewal pages do much to meet both objections The new articles include two on tuberculosis The first deals with the enormous subject of pulmonary disease in adults as adequately as can be expected within the imposed limits The classification adopted would not meet with universal approval from the expert, and is so complicated that it is likely to confuse the beginner The second, on tuberculosis in children, by Prof Arvid Wallgren, richly illustrated from the author's long experience, is outstanding in its clarity and comprehensiveness After these comes an entirely new article on the sarcoid of Boeck, a subject that has become of importance to the general clinician since the recognition of the widespread manifestations of this disease The older articles on diphtheria clinical chemistry cancer of the breast and uterus, and menstruation have also been completely replaced In the final section of the renewal pages the heavy task has been undertaken of reviewing the ever increasing literature on sulphanilamide and on serum therapy in pneumonia The sulphanilamide literature is well covered up to the middle of 1938, but the rapid advance of chemotherapy is illustrated by the fact that by then there had been no mention of M & B 693 On the whole these pages enhance the value of their parent volumes

Diets for Diabetics

Arranged in menu form By G E BEAUMONT, D M Oxfd, F R C P, physician to the Middlesex Hospital, London London J and A Churchill 1938 Pp 40 2*s*

THIS booklet contains sixteen diets arranged in order of caloric value with sufficient alternatives in each case to relieve the patient from the necessity of working out equivalent food values from tables Unfortunately all are based on a low carbohydrate intake for even the highest diet, with a calorie value of 2369, contains only 131 3 g of carbohydrate The book's usefulness is therefore somewhat limited but it will still enable many patients to introduce safe and attractive variation into their menu

Treves's Handbook of Surgical Operations

(6th ed.) Revised by CECIL P. G WAKELEY, D Sc., F.R C S., F.R.S E , senior surgeon to King's College Hospital, London London: Cassell and Co. 1939. Pp 563 12s.

THERE was always something very attractive about Treves's handbook for students It was concisely written, eminently practical, and contained all the recognised operative procedures then in vogue Under the able editorship of Mr Wakeley it has been brought up to date, and in such a way that its general character has been preserved Indeed, reading some of the new matter introduced, it is difficult to realise that it was not penned by the original author. There is, however, a striking change in the illustrations, which are now mostly wash, in place of the original line drawings which are becoming unfashionable. It is difficult to see why this should be, unless in this age of speed and hurry artists themselves are deserting the slower technique The book is still an excellent guide to students preparing for the higher surgical examinations as well as to those who have passed such tests and are beginning practice.

Relaxation in Everyday Life

By E. J. BOOME, M.B , M R C.P., D.P H., T.D , *principal assistant medical officer, London County Council*; and M. A. RICHARDSON, *speech therapist and lecturer, L C C.; late therapist, relaxation therapy department, Elizabeth Garrett Anderson Hospital. London: Methuen and Co.* 1938. Pp. 131. 5s

RELAXATION as a therapeutic measure has long been known and practised, usually as an aid to more active psychotherapeutic treatments, and its value is well established In this book the authors carry their advocacy of relaxation a stage further, recommending its sole use in severe psychoneuroses such as the anxiety states They quote cases to show that a fully relaxed patient is able to bring into consciousness, without assistance, memories and inhibited ideas that have long been repressed. Here they will probably find themselves at variance with psycho-analysts and others who, while believing that relaxation assists analysis and abreaction, will be unlikely to agree that a patient should attempt these essentially psychotherapeutic measures unaided The fact that their book is addressed to the man in the street makes this comment inevitable.

The intervention of the "relaxation therapist" in the treatment of patients suffering from epilepsy and enuresis, and the use of relaxation for conditions such as asthma and exophthalmic goitre, suggest that in such treatments the elements of suggestion and auto-suggestion cannot be excluded, and this the authors do not acknowledge as clearly as they might When dealing with the effect upon the child of the nervous and unrestful parent, the authors are on ground that they obviously know very well, and a study of this part of the book should be of value to every medical practitioner. There is a special appendix on stammer which, while adhering closely to the method of relaxation for its cure, gives a useful summary of this difficult subject

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Quarterly Journal of Medicine

THE January issue contains the following papers .—

ON SPONTANEOUS PNEUMOTHORAX By Kenneth M. A. Perry (London Hospital) A survey of the literature on benign spontaneous pneumothorax with observations on 85 cases admitted to the London Hospital in the years 1924–37. Recurrence took place in 4 cases; tense pneumothorax called for air aspiration in 3 All the evidence points to rupture of a subpleural air-containing vesicle, independent of active tuberculosis, as the immediate cause; the vesicle may arise from valvular obstruction of a bronchiole, from localised emphysema, or as a congenital defect Apart from immediate risks the prognosis is favourable

INSULIN RESISTANCE AND THE DIAGNOSIS OF THYROID DISEASE By W J Griffiths (St Thomas's Hospital) Capillary and venous blood-sugar levels in the arm are determined before and after simultaneous administration of glucose by mouth and insulin intravenously An abnormally steep rise in capillary blood-sugar indicates central (hepatic) resistance to insulin, an abnormally small capillary-venous blood-sugar difference indicates peripheral (muscular) resistance to insulin action Most of 17 cases of toxic goitre showed peripheral insulin resistance, returning towards normal after thyroidectomy Most of 18 cases of non-toxic goitre also showed peripheral resistance to insulin. Some cases of both groups showed central resistance to insulin The peripheral resistance points to a defective uptake of glucose by the muscles in both forms of goitre; this phenomenon, along with the creatinuria and muscular weakness often observed along with it both in thyroid disorders and in diabetes, acromegaly and dermatomyositis, suggests that a muscular disorder occurs in all these conditions independent of any disturbance of the basal metabolic rate

FURTHER STUDIES OF PLASMA LIPIDS IN TOXIC GOITRE. Evidence Suggesting a Bimodal Distribution By Eldon M. Boyd and W. Ford Connell (Queen's University, Ontario) Results of differential plasma-lipid determinations in 59 cases of toxic goitre are given On statistical analysis they fall into two groups, a larger one with low total-lipid values, and a smaller one with high normal values

PLASMA LIPIDS IN ANXIETY STATES AND THEIR COMPARISON WITH THE LIPOPENIA OF HYPERTHYROIDISM By Eldon M Boyd, W Ford Connell and Arthur M Doyle (Queen's University, Ontario). Values found in 76 patients with anxiety states lay between those found in normal subjects and in hyperthyroid patients, but the ranges overlapped too much to make the determination of use in differential diagnosis

OBESITY, HYPOGENITALISM, MENTAL RETARDATION, POLYDACTYLY AND RETINAL PIGMENTATION (The Laurence-Moon-Biedl Syndrome.) By Arnold Sorsby, Harold Avery, and E A Cockayne Additions to the literature of this affection in the last four years are reviewed Two new families are reported The genetics of the condition are discussed, and a series of allied conditions described for comparison

SUBSTITUTION THERAPY IN HYPOPITUITARISM By A W. Spence and L J Witts (St Bartholomew's Hospital) In two cases of postoperative hypopituitarism treatment with combined thyrotropic and gonadotropic extracts of pig's pituitary caused only a transient rise in the basal metabolic rate In one of the patients the treatment relieved an obscure stiffness and spasmodic twitching of the legs, and during treatment a previously almost complete achlorhydria was replaced by a copious gastric acid secretion.

Acta Medica U.R.S.S.

WE welcome a recruit to the ranks of medical publications: *Acta Medica U.R S S.*, published by the people's commissariat of public health. Moscow The first number contains 200 pages and has sixteen original articles: seven in French, four in German, and two each in Russian and English. Most of them deal with pain and nervous regulation; but there is one on the part played by adenine nucleotide in the chemistry of muscle, one on a new serological test used in the diagnosis of syphilis, and one on lysozyme The second number has much fewer pages and contains fifteen articles written on a greater variety of subjects nine in French, three in German, two in Russian, and one in English. This periodical is advertised as "a magazine for physicians and scientific workers" and as publishing articles on "theoretical research and clinical practice," there being four issues a year The subscription is 12s a year or 6s. for six months, and it is obtainable from *W. H. Smith and Son, Ltd.*, Strand House, Portugal Street, London. W.C 2. or *from Collett's Foreign Dept , 07, Great Russell Street*, London, W.C.1.

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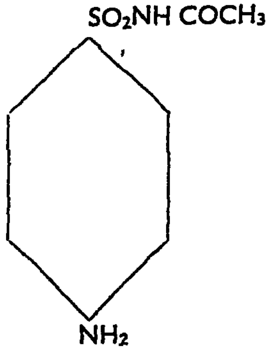

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THE LANCET

LONDON SATURDAY, FEBRUARY 25, 1939

CONVULSION THERAPY

THE Cardiazol treatment of schizophrenia has been following what seems the predestined course of any therapeutic method introduced into psychiatry. It has been extended to other forms of illness besides that for which it was proposed; its theoretical basis has been questioned; its efficacy and mode of action are still in doubt after four years of widespread trial; and it has been modified and combined with other methods to the confusion of those who would like clear proof of its usefulness. Many writers, such as **VERSTRAETEN**[1] and **COOK**[2] have reported success in the treatment of involutional melancholia, as well as isolated cases of benefit in mania, hysteria, obsessional states and other mental disorders; indeed **LEROY**[3] of Liége finds it still more widely applicable, since he would use it for eczema, urticaria, migraine and asthma. Although it was originally conceived because there seemed a "biological antagonism" between epilepsy and schizophrenia, the clinical observations from which this antagonism was inferred are now in dispute. Explanations of what goes on in the cerebral tissues and the body fluids are numerous but there are still no satisfactory means of judging their correctness.

Which type of schizophrenia does best with the treatment is also unsettled. Dr **IAN SKOTTOWE** at last week's meeting of the section of psychiatry of the Royal Society of Medicine suggested a tripartite classification in which one of the groups, characterised by disorder of symbolic thinking and expression, included those who were unlikely to do well with either cardiazol or insulin. Dr John **BRANDER**, speaking after him, questioned whether either of these methods ever achieved results peculiar to them rather than to those who enthusiastically employed them; such scepticism as this would generally, however, be thought excessive. It is commonly supposed that cardiazol benefits stuporose patients chiefly, but as **MEDUNA** points out in his most recent paper[4] different observers have come to diametrically opposed conclusions. **MEDUNA** himself does not think we can yet say which groups of schizophrenics will respond well; as in the statistics published by Dr **REITMANN** in our present issue, emphasis is rather put on the duration of the illness before the cardiazol treatment is started. Comparison of the results with those obtained by other means is unsatisfactory, moreover, unless (among other things) the patient's recovery or remission has always been assessed at approximately the same length of time after the conclusion of the course. Making due allowance for this, the interesting figures given in the paper by Drs **STALKER**, **MILLAR** and **JACOBS** on another page, indicate that the benefits of shock treatment may consist rather in shortening the duration of the illness than in improving on the outcome attainable by less drastic methods. Various writers believe that discrepancies in the reported results of cardiazol treatment in different centres are due in part to the differing degree to which psychotherapy is utilised in the procedure. **MEDUNA**, who holds this view strongly, explains what lines his psychotherapy follows; it will appear to many that the simple and kindly persuasive method he employs, mainly to lead the patient towards insight into the morbidity of his former delusions and hallucinations, is hardly likely to affect the course of the illness or the statistics materially, though it would of course be a proper and helpful feature of the treatment.

Among the risks of cardiazol treatment it is not necessary to include death; 9 fatal cases among 2937 *is not an alarming record on the whole*; *though* there have no doubt been other and unreported fatalities their number cannot be large, and so long as the selection and treatment of the patients is carried out cautiously there is scarcely anything to fear on this score. Dr **ATKIN** communicates on another page some observations on triazol, the related analeptic introduced by **MAYER-GROSS** and **WALK**, and describes how he has given a supplementary dose when the first has not sufficed to cause a fit—a procedure that obviously calls for great care if no undue risk is to be taken. He also mentions the possibility that pulmonary tuberculosis may be stirred up by the treatment. Of the non physical risks very little has been written. **RÜMKE**[5] of Utrecht has seen patients whose condition was made worse by cardiazol, and others in whom insulin had had a similar untoward effect—namely, that they lost some of their schizophrenic features but became apathetic and without initiative, monotonous, vague, and indifferent to social requirements. **MEDUNA**, however, has not met this. Most of those who have worked with cardiazol will admire **MEDUNA**'s honesty and endorse his opinion when he writes: "As regards enthusiasm, I must confess that I am not myself enraptured with the cardiazol treatment, but for the present I do not know anything better that I can recommend. In any case I regard it as my duty to work as hard as I can at devising a procedure that obviates the apparently violent shock to the patient, while utilising only the biochemical processes to which the shock gives rise."

BACTERIA IN THE AIR

WE have for many decades recognised that clean water and milk are essential if the spread of intestinal infection is to be limited. The importance of the air, as a vehicle for those pathogenic micro-organisms that survive their immediate discharge from an infective source, has only recently received recognition. The state in which living bacteria are carried for long periods through the air is a matter for conjecture. There is both circumstantial and experimental evidence that most of the pathogenic bacteria in the air are spat, sneezed, talked and coughed into it from the respiratory tracts of men and animals. They may be as dry as dust, but it is more likely that the natural affinity for water possessed both by the bacteria and their enveloping mucus prevents complete drying, and that the particles float about in a state of partial hydration Air bacteria have been removed by filtration and killed by ultraviolet light, but such methods involve the installation and maintenance of expensive plants. A room full of air may be cheaply and efficiently sterilised by some form of antiseptic, but unfortunately the concentration of an antiseptic gas or vapour that kills bacteria is equally poisonous for human protoplasm, and the air is not fit for use until the antiseptic has been removed. Sterility cannot be maintained while human beings are in the room, for hitherto any bearable concentration of antiseptic has been ineffective against the bacteria. It has now been found, however, that by atomising a strong antiseptic solution the air can be filled with a mist so fine that the final concentration of antiseptic is very small indeed, sometimes as low as one part in several millions. Dr. PULVERTAFT and his colleagues describe in this issue experiments with antiseptic mists, called Aerosols, that are capable of ridding the air of living bacteria

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[1] Verstraeten, P. *Ann. méd.-psychol.* 1937, 95, [illegible]
[2] Cook, L. C. and Ogden, W. *Lancet*, 1938, 2, [illegible]
[3] Leroy, A. *J. belge Neurol. Psychiat.* 1938, 38, 613
[4] Meduna, L. von, *Psychiat. neurol. Bl., Amst.* 193[illegible], Nos 3 and 6
[5] Rümke, *Ibid* (Conclusion to Meduna's paper)

The aerosol consists of a suspension in air of liquid droplets about 1/200 of a millimetre in diameter, which are small enough to remain in a still atmosphere for many hours. They contain, in addition to the antiseptic, substances with an affinity for water, which prevent the rapid evaporation which would take place from the surface of a pure-water droplet of the same size. The concentration of antiseptic in the droplets is thus about the same as that in the parent fluid In the aerosol the distance between droplets is such that, supposing them to be evenly distributed and immobilised in space, each droplet would have to account for the death of all the bacteria round it, in an air space about 10,000 times its own volume. Since the antiseptic is not volatile the sterilisation of the air will obviously depend on the degree of mixing that takes place in the mist, and the readiness with which the bacterial particle absorbs the antiseptic droplet, or the droplet the bacterial particle. Currents moving at a few millimetres per second can carry aerosol particles, and even in a quiet room bacteria and droplets will be continually approaching one another. Moreover, as the mist slowly settles, the concentration of droplets, and therefore the frequency of approach, increases in the lower levels. Whether a bacterial particle coming into contact with a droplet will enter it, depends on the nature of the two surfaces Two particles of similar electrical charge, for example, will repel one another The readiness with which mutual absorption of the two will take place is determined by the physical and chemical differences between the bacterium and the antiseptic droplet The electrical field on the surface of an aerosol may be changed by the addition of surface-active chemicals; these increase sterilising power. Sterilising power is, on the other hand, decreased by the presence on each droplet of a surface film of oil, which presents to the atmosphere a particularly inert electrical field Many antiseptics, highly lethal in bulk, are ineffective as aerosols; and it is possible that they are so because they induce in the droplet a surface unsuitable for absorption of the bacterial particle. Possibly too the greater resistance to aerosol sterilisation that Dr PULVERTAFT found in the diphtheria bacillus is due not to any inherent resistance of its protoplasm to poison but to a surface inapt for absorption into a droplet.

The mists are innocuous to man because, being sparse, their average concentration in air is low, they are effective presumably because of their power of absorbing bacteria But the very properties which make them effective in air render them inefficient for the sterilisation of solid surfaces Dr PULVERTAFT has shown that it is only on glass, rubber or metal that a test dose of dried bacteria is killed. If the surface to be sterilised is porous the mist is absorbed on to it, if the bacteria are wet—that is, relatively hydrated—they will not absorb the mist, even on the most favourable surfaces. For similar reasons it is unlikely that aerosols penetrate far into cracks and other narrow spaces. Not only are these bounded by absorbent surfaces but their narrowness will prevent those mixing motions of the air that ensure contact between bacterium and droplet It appears that the method may be applied with some certainty to large bodies of relatively still air. The case for the sterilisation of continuously replaced air is less well established, it would at present be an expensive procedure to dose the air-supply, for example, of a large ward with an adequate concentration of antiseptic mist

There is need for more research into the nature of the colloidal forces that obtain on the surface of various air-borne particles. We know a good deal about the way in which the behaviour of a bacterium in fluid suspension is determined by its surface but very little about the physicochemical state of bacteria or bacteria-containing particles in air. Further study of these floating particles will no doubt remove some of the limitations of sterilisation by aerosols. For the present, as Dr PULVERTAFT points out, even partly effective methods are of value, and we may be thankful for additional weapons against at least one kind of menace from the air.

TONSILLECTOMY ON ITS DEFENCE

IN his report for 1923 as chief medical officer of the Board of Education, Sir GEORGE NEWMAN remarked that 47,000 operations for the removal of adenoids or enlarged tonsils had been performed during the year on children in schools maintained by local authorities. He adjured education authorities and school medical officers to ensure that such operations were undertaken only when absolutely necessary It was not sufficient, he said, for the school doctor merely to find local inflammation or even hyperplasia; he should satisfy himself in respect of each case that operative treatment was required. A little later a departmental committee concluded that the immediate results of operation were favourable in the great majority of cases. In 1930 NEWMAN gave the total number of cases operated on for tonsils and adenoids as 97,518, 75,794 of the operations being done under arrangement with local education authorities; this was equivalent to 35 per cent. of the number referred for treatment, and he again urged school medical officers to satisfy themselves, before undertaking operative measures, that the condition of the throat and nasopharynx had or was likely to have a detrimental effect on the child's health. It was not until the following year that NEWMAN, in response to anxiety felt by the Board of Education at the continued increase in frequency of operation, felt himself in the position to assess the situation. The immense and rapidly increasing number of such operations was bound, he said, to convey an impression that far too many were being performed. The lack of accurate knowledge on this great problem of school medicine, too, was surprising; here was an opportunity, he suggested, for some energetic and alert member of the school medical service to play the part of a JAMES MACKENZIE and make the appropriate investigation in a small compact community. In 1932 he registered a singular decrease in numbers operated upon in certain areas, and expressed his gratification that cases were being followed up over a series of years. But it was left to Dr J. ALISON GLOVER, as senior medical officer of the Board of Education, to provide a general review of tonsillectomy as a prophylactic ritual.[1] In an address to the Royal Society of Medicine he left the anomalies of incidence to speak for themselves, citing, for example, the fact that a child living in Rutlandshire or the Soke of Peterborough was nineteen times more likely to undergo *tonsillectomy* than one living in Cambridgeshire. He found throughout the country enormous variations, unrelated as far as anyone could see to environment, circumstances, efficiency of school medical or dental services, or indeed to any recognisable factor. He also pointed out that tonsillectomy is at least three times as common in the well-to-do classes, but without implying that mundane reasons influenced the surgeon. As he was dealing mainly with children attending state-aided schools his challenge was clearly that tonsils were being removed with good intent but without good cause.

The reply was sure to come, and its delay is testimony at least to the skill with which Dr GLOVER marshalled his facts. Dr C. W. ANDERSON has come to the conclusion[2] that GLOVER'S evidence does not prove his thesis, for other explanations of the local and temporal variations of the rate are possible. In localities where it was formerly high the rate has, he says, been greatly reduced without material influence on child health, and this suggests to him that the former rate would now be excessive; it was necessary at the time, but is so no longer owing to the diminution of throat conditions calling for operative treatment. Assuming that tonsillectomy can be harmful a reduction of unnecessary operations should have improved child health; on the other hand if the reduction in operations has been too sweeping any good effects from diminishing the number of unnecessary operations might be masked by the bad effects of diminishing the number of necessary ones. As evidence that the state of the tonsils varies from year to year, ANDERSON gives the tonsillectomy rates among elementary and high-school children in Cardiff from 1923 to 1937 (they are only slightly above the average for the country). The rate rose from 1·03 per 1000 average attendances in 1923 to 2·49 in 1931, the peak year of the "tonsil rush"; it fell to 0·71 in 1935, but rose again to 1·27 in 1937. There was no change of policy or personnel during the period, so he believes that the variation in rate reflects a genuine variation of the need for the operation, the criteria remaining constant. What applies to different years will apply also to places, and ANDERSON illustrates by a graph the connexion between the tonsillectomy-rate and the variation in prevalence of epidemic diseases which cause sore throat. In most places where the rate has been drastically reduced it tends to rise again, which may suggest that the reduction had gone too far. Not only the tonsils but also the state of medical opinion may change; undoubtedly part of the big rise was due to the belief that removal of tonsils might prevent juvenile rheumatism. Available evidence is now against such removal, so the number of tonsillectomies for this purpose will fall; but it was an honest and possibly valuable trial of a preventive measure. He does not deny that many tonsils have been removed for simple physiological enlargement, nor does he dispute that when adenoids are removed because they are causing obstruction the tonsils are often removed at the same time as a routine—both of which practices are unsound. Similarly in the years when there was a popular fear of "septic foci" many tonsils were sacrificed which might have been spared.

Dr ANDERSON gives cogent reasons for the rapid rise of tonsillectomies up to the peak years and for the fall that ensued. Some of the causes of the rush—the growing appreciation of the benefits of the operation, the provision of facilities formerly lacking, the accumulation of cases—will not reappear. Hence the figures for the peak years will probably remain as a record. But according to ANDERSON the low rates of the post-rush period will also pass, since they too were largely artificial. This remains to be seen.

* The surgical literature of today, apart from such textbooks as must rank as masterpieces, is very often mortally dull. With its desire to be impersonal, with its false appearance of modesty, its proper names in parenthesis, with its childish didacticism and its constant reiterations of things already said a hundred times, with its mosaic of contradictory and corresponding opinions, it has become unreadable.—RENÉ LERICHE in the introduction to his book "The Surgery of Pain," London, 1939, p. 18.

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[1] Glover, J. A., *Proc. R. Soc. Med.* 1938, 31, 1219; see *Lancet*, 1938, 1, 1218.

[2] Anderson, C. W., *Med. Offr*, Jan. 7, 1939, p. 5.

ANNOTATIONS

CHEMOPROPHYLAXIS

THE use of sulphonamide compounds to prevent possible infection has been a common practice, but their value for this purpose is necessarily difficult to assess Specific remedies of other kinds are even more certain in their preventive than their curative action, and on theoretical grounds there is no reason for supposing that these drugs are an exception There is also evidence that they will prevent the development of streptococcal infection in mice; this was found several years ago to be true of Prontosil, and Hoare[1] has now shown that if due regard be paid to questions of dosage, route of administration, and the solubility of the drug used, so that an adequate concentration is maintained in the blood, sulphanilamide and M & B. 693 will exert the same effect His conclusion both from these experiments in mice and from observations on the bactericidal power of the blood in parturient women given these drugs prophylactically is that a dose of 1 g three times daily will prevent streptococcal infection, and should be given when there is a special risk of this The choice of suitable cases will always remain a matter for individual judgment, but clearly their main distinguishing feature should be the limitation of risk to a known and brief period—whether that of labour, of a surgical operation, or of some other known exposure to possible infection. There is, for example, a case in favour of such treatment at least in some cases of influenza and measles, with a view to preventing otitis or pneumonia, because the period during which these complications are likely to arise is limited to a few days On the other hand the protection of normal exposed persons against epidemic sore-throat or scarlet fever might have to be maintained for weeks unless all possible sources of infection could be removed; such prolonged administration may well be unjustified, and it is not surprising that such attempts, as in the experience of Smith,[2] have had disappointing results

It is almost universally believed that a single course of sulphanilamide should not last longer than about a fortnight, both because no purpose is likely to be achieved by prolonging it—although repetition may be necessary, as in treating gonorrhœa—and because continuation brings added danger of toxic effects, particularly on the bone-marrow. In view of this belief, no small astonishment is likely to be felt at two reports from America on the prophylactic use of sulphanilamide in patients subject to rheumatic fever, since this was continued in some cases for as long as eight months without interruption It is abundantly clear, and cannot be too strongly emphasised, that sulphanilamide is useless and indeed harmful during an attack of rheumatic fever. This attack may be looked upon as the sequela of a streptococcal throat infection, and the drug was here used in an attempt to prevent such infections over a considerable period In several series of cases described by Coburn and Lucile Moore[3] children from six to fourteen years of age under care in an institution were given 2–3 g of sulphanilamide daily for eight months; Caroline Thomas and France[4] gave only 1 g. or 1 3 g daily to adult outpatients for seven months No ill effects were observed other than some failure among the children to gain weight, and almost without exception the patients remained free from rheumatic attacks during the period of administration. Coburn and Moore's cases are the more significant, since they were more numerous and more liable to attacks of streptococcal throat infection by reason of their age and history, and the fact of their confinement together in an institution where such infections are liable to spread Careful studies were made of the sedimentation-rate and of the throat flora; the frequency and degree of the streptococcus carrier condition seem also to have been diminished

This work will repay detailed consideration by those interested in the care of rheumatic subjects That it is possible to give sulphanilamide for such long periods is an important observation, but it is hard to think of any other condition in which such treatment can be necessary or justified.

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1 Hoare, E D, *Lancet*, Jan 14, 1939, p 76

2 Smith, A, *Ibid*, 1937, 2, 1061

3 Coburn, A F, and Moore, L V, *J clin Invest*. January, 1939, p 147.

4 Thomas, C B, and France, R., *Bull Johns Hopk Hosp* January, 1939, p 67

SPRUE

IN an analysis of 20 cases of non-tropical sprue seen in Switzerland during the last four or five years Markoff[1] points out how many of the so-called signs of sprue are those encountered in all states of extreme undernutrition, the only striking difference in sprue being its association with anæmia, though even this is not invariable He seems to regard non-tropical sprue as merely a severe gastro-enteritis combined with and enhancing undernutrition In a somewhat similar way Rohr[2] believes that the disease is the result of three interacting factors: first, a gastro-intestinal disorder; secondly, a deficiency of vitamins, iron, calcium, and Castle's principle; and thirdly, disturbances of endocrine function—the first being the most important Attractive as the theories involving endocrine disturbances may be, and particularly that of Verzár,[3] it is far from proved that such disturbances play any part in the production of idiopathic steatorrhœa. In a paper recently noted in these columns Brull, Lambrechts, and Barac[4] laid stress on the rôle of vitamin deficiencies, and Stadler[5] also thinks that a secondary deficiency of vitamin B_1 is important. Malabsorption admittedly has much to do with the causation of sprue and soon leads to the establishment of a vicious circle, but it seems clear that the nutritional deficiency is relative and secondary to some more fundamental failure Tropical sprue, for example, often attacks Europeans in India and is almost unknown in Africa, but the diet of Europeans in India normally appears adequate and certainly is not obviously inferior, either quantitatively or qualitatively, to that of their fellows in Africa. In the established disease Fairley[6] has shown the value of compensating for deficiencies resulting from malabsorption, and of alimentary rest, by restriction of fats and carbohydrates, in the restoration of the absorptive function; but the fact that these measures break the vicious circle and change the whole course of the condition does not prove that they point to the true ætiological factor Furthermore it is by no means certain that tropical and non-tropical sprue are essentially identical, to say nothing of cœliac disease The interest that is now being displayed in these syndromes, however, must inevitably lead not

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1. Markoff, N G, *Helv med Acta*, Suppl III, 1938, 5, 1

2 Rohr, K, *Dtsch Z VerdauKr* 1938, 1, 46

3 Verzár, F, *Schweiz med Wschr* 1937, 18, 823

4 Brull, L, Lambrechts, A, and Barac, G, *Rev belge Sci med* 1938, 10, 457, see *Lancet*, Jan 14, 1939, p 100

5 Stadler, H, *Schweiz med Wschr* 1937, 67, 1091

6. Fairley, N H, *Trans R Soc trop Med Hyg* 1930, 34, 131

only to their elucidation but also to important additions to our knowledge of the physiology and pathology of nutrition

A PORTRAIT

NEXT Wednesday at the house of the Royal Society of Medicine Dr Robert Hutchison is to receive a presentation portrait from his friends So runs the announcement, but it would be more correct to say "from some of his friends" There can be few men alive today who have had a more intimate influence than Hutchison on the everyday practice of medicine, and he has achieved it largely by the direct impress of personality All over the world practitioners think of his precepts as they work at the bedside, their faces faintly reflect his smile as they remember his salted sayings, and they are daily saved from imprudence and humbug because they were taught by a man with a sublime gift for common sense Mr James Gunn, who has made the portrait, has done well to paint the face in detail, and his study will interest succeeding generations in our present president of the Royal College of Physicians Today we are concerned less with the president than with the pleasure of paying affectionate tribute to one of our greatest clinicians and teachers By whatever title Dr Robert Hutchison is known to posterity, for most of us it will never quite replace the title of physician, preceding the honest Scots names to which he has given *distinction*

POSTURE IN THORACIC SURGERY

THE position of the patient on the operating table does not give rise to much difficulty in the work of the general surgeon, but in thoracic surgery it constitutes a major problem Most thoracic operations are performed on the patient's back, and special arrangements have to be made to secure the greatest degree of comfort and convenience for both patient and surgeon In operating for empyema the sitting or "jockey" position has the advantage of allowing easy access to the correct site for drainage but in this position the shock produced by rib resection would be likely to cause syncope Consequently the lateral posture is the one most commonly employed In this the site of operation is uppermost, and the only problem is to keep the patient stable and prevent him from rolling onto his face or back Various attachments to the operating table, such as a plate like chest support and pelvic cushions, make it possible for the patient to be rigidly held without embarrassing his respiration Critics of this position suggest that the healthy or underlying lung may be restricted by being lain on, but the spirometric observations of the late Prof Jacobaeus showed this supposition to be wrong On the other hand, it is a justifiable criticism that secretions from the side being operated on may flow into the healthy lung and if they cannot be expelled may have harmful effects To overcome this difficulty Iselin and Julia[1] advocate placing the patient in the prone position The pelvis rests on a large cushion and a soft support is also provided for the shoulder girdle They say that the respiratory excursions on both sides are thus unimpaired and that by inclining the table so that the body slopes downwards and flexing the neck secretions can flow from the air tubes to the mouth without the effort of coughing In thoracoplastic operations one of the tasks of an assistant is saved by allowing the arms to hang down over the sides of the table so that their weight pulls the scapula forward Iselin and Julia claim that the actual operative procedures are easier once the surgeon has become accustomed to the new orientation, and that the patient is less liable to complications

SIMPLER TREATMENT OF WAR WOUNDS

THE Spanish war has seen a peculiar development in the treatment of wounds, mainly towards simplification and partly for reasons of economy The use of medicaments and cotton wool has diminished enormously, and greater reliance is placed on *vis medicatrix naturae* In their Air raid article in our last issue Mr Mitchiner and Mr Cowell discussed the closed method of treatment by which suppurating wounds and compound fractures of limbs are enclosed in plaster of paris, which is left in situ for a fortnight at a time, but in Spain the open method also is used for similar wounds Where patients are in bed the wound can be protected by a metal cage, where they are ambulant the same thing can be done with an oval or circular rampart of cardboard or other flexible material padded and wrapped in gauze, applied to the surface of the body round the wound, kept in position with gummed tapes, and covered with a layer of gauze[1] If the suppuration is excessive a roll of gauze can be placed within the cage—along its walls, but out of contact with the wound—and can be removed whenever necessary A further precaution in such cases is to line the cage with batiste or to smear it with zinc ointment This method of treatment, it is claimed, not only makes a great saving in the quantity of dressings used but also promotes more rapid healing

LIQUID PARAFFIN AND CAROTENE ABSORPTION

TWELVE years ago Burrows and Farr[2] showed that rats were unable to utilise the vitamin A of butter fat when it was mixed with liquid paraffin Later workers found on the other hand that liquid paraffin had no effect on the utilisation of the vitamin A of cod liver oil The significance of this difference was not explained until Moore[3] in 1929 differentiated between vitamin A and its precursor carotene and subsequent animal experiments have made it clear that whereas the absorption of carotene is seriously interfered with by the presence of liquid paraffin in the alimentary tract that of vitamin A itself is not These observations have now been carried a step further by Curtis and Kline[4] who have studied the effect of the administration of liquid paraffin on the blood carotene in human beings They first showed that in people taking a low-carotene diet the blood carotene fell steadily when crystalline carotene dissolved in cotton seed oil was given mixed with liquid paraffin, but rose rapidly when the carotene solution was given alone They next gave their patients a high carotene diet and found that when 20 c cm of liquid paraffin was taken before meals the blood carotene remained at a constant level whereas it at once began to rise when the liquid paraffin was omitted A daily dose of 30 c cm of paraffin given at bedtime, however, when there was no likelihood of it becoming mixed with food had little if any effect on carotene absorption Curtis and Kline point out that their results apply only to carotene and not to vitamin A as such, but nevertheless their findings are an argument against the common practice of prescribing paraffin at mealtimes, when many think it acts best as a laxative and is less liable to leak

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[1] Iselin M, and Julia, A, *Arch méd-chir Appar resp* 1938, 13, 213

[1] Fink A *Rev Sanid Guerra* June-August 1938 p [illegible]

[2] Burrows M T and Farr W K *Proc Soc exp Biol* 1927 24 719

[3] Moore T *Biochem J* 1929 23 803

[4] Curtis A C and Kline E M *Arch intern Med* January 1939 p 54

A NEW NEUROLOGICAL INSTITUTE

THE appointment of Prof. F. L. Golla as director of the new Burden Neurological Institute gives the clue to the purpose of an admirably designed surgical unit within the grounds of Stoke Park, near Bristol The building comprises laboratories for biochemical, physiological and endocrinological research, together with two observation wards each containing 10 beds It was built and equipped by Mrs. Burden, the benefactress of the Stoke Park mental defective colony, and maintenance funds have been guaranteed for ten years by the Burden trustees The institute is under a committee which has Sir Laurence Brock as chairman, and with Prof. Golla are associated Mr. W Grey Walter, Prof. Max Reiss, Mr L D. MacLeod, and Mr A. H Tingey In the first instance research work will be concentrated on the pathological physiology of epilepsy and the pathology of schizophrenia, a small number of cases of each being intensively studied. It is hoped to establish relations with mental hospitals in the vicinity and to form a centre for the promotion of scientific research in psychiatry There are already clinical research wards at the National Hospital, Queen Square, and Edinburgh is famous for neurological research, but this institute is possibly the first example in this country of research laboratories with wards attached for the intensive study of mental and neurological cases; for elsewhere laboratories exist as ancillary to the exigencies of a hospital service. The institute is to be opened by Sir Thomas Inskip early in May and Dr. Golla is resigning the chair of pathology of mental disorders in the University of London.

HUMUS AND HUMANITY

OF the many avoidable ills which inflict us, two of the more obvious are malnutrition and soil erosion, which are in some respects interconnected The destruction and loss of soil by wind and water erosion as the result of faulty agricultural methods is now being recognised as a serious menace to the welfare of the inhabitants of many parts of the world, and particularly of Africa It is nowhere more serious than in Southern Rhodesia where Mr. G C Watson lives It is therefore not unnatural that he should express himself strongly on the subject in his book "The Soil and Social Reclamation" (London: P S King and Son 1938 Pp. 173 7*s* 6*d*). But the more urgent the problem the more essential it is that its significance should not be unreasonably exaggerated, and that any statements made should be based upon sound scientific knowledge. To the statement that "much of the desert portions of Africa are man made" might in fairness have been added that the world's major desert, the Sahara, is known to have been arid for at least five times as long as man has existed That "Diseases are now mainly traceable to malnutrition through faulty diet, which in turn is due to wrong treatment of the soil" contains much truth but as it stands is obviously open to exaggerated misinterpretation The author would have been well advised to omit any mention of the scientific aspects of nutrition, a subject on which he is singularly ill informed. "Cretinism and goitre, for example, have been traced to excess of lime" is one of several statements which support this conclusion On the other hand he is well aware of the wider significance of malnutrition in Africa and makes the admirable plea that employers of native labour should more fully realise their duty, and indeed their own interests, by instructing their employees "with patience, with charity and by example" in the principles of hygiene and sound nutrition

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1. Hall, F C, *New Engl J Med.* 1938, 219, 1015.

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On the larger issue of deep shelters for all dangerous areas Lord Birkenhead spoke of the risk of their becoming death traps on a gigantic scale, the penetrating power of bombs might increase and the provision of shelters suitable at the present time would be an irrevocable commitment which to him would be an enormous gamble On the other side are the 300 doctors practising psychological medicine including 60 medical superintendents of mental hospitals, who avowed, in the newspapers of Feb 8 that deep air raid shelters are essential to avoid national anxiety The peace of mind and reassurance so achieved would be increased by the realisation that the Government had done everything possible for the nation's safety, and this in turn would improve morale and foster the sense of unity so valuable in warding off panic

DIRECTORSHIP OF WATER EXAMINATION, M W B

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[1] Brit med J 1938 2 1330 Jan 28 1939 p 198 Feb 11, p 314

[1] Tumbling in the Hay By Oliver St John Gogarty London Constable and Co Pp [illegible]

A NEW NEUROLOGICAL INSTITUTE

THE appointment of Prof. F. L. Golla as director of the new Burden Neurological Institute gives the clue to the purpose of an admirably designed surgical unit within the grounds of Stoke Park, near Bristol. The building comprises laboratories for biochemical, physiological and endocrinological research, together with two observation wards each containing 10 beds. It was built and equipped by Mrs. Burden, the benefactress of the Stoke Park mental defective colony, and maintenance funds have been guaranteed for ten years by the Burden trustees. The institute is under a committee which has Sir Laurence Brock as chairman, and with Prof. Golla are associated Mr. W. Grey Walter, Prof. Max Reiss, Mr. L. D. MacLeod, and Mr. A. H. Tingey. In the first instance research work will be concentrated on the pathological physiology of epilepsy and the pathology of schizophrenia, a small number of cases of each being intensively studied. It is hoped to establish relations with mental hospitals in the vicinity and to form a centre for the promotion of scientific research in psychiatry. There are already clinical research wards at the National Hospital, Queen Square, and Edinburgh is famous for neurological research, but this institute is possibly the first example in this country of research laboratories with wards attached for the intensive study of mental and neurological cases; for elsewhere laboratories exist as ancillary to the exigencies of a hospital service. The institute is to be opened by Sir Thomas Inskip early in May and Dr. Golla is resigning the chair of pathology of mental disorders in the University of London.

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[1] *Brit med J* 1938 2 1330 Jan 28 1939, p 194, Feb 11 p 31.

[1] Tumbling in the Hay By Oliver St John Gogarty London Constable and Co Pp 325 10s 6d

A HUNDRED BROKEN NOSES

In his account of 100 nasal injuries Gerrie[1] of Montreal records that 83 of the patients were males, and that sports accounted for 23 cases, of which 19 were due to ice-hockey and baseball. Almost all nasal fractures are impacted, and Gerrie divides them broadly into two types. The commoner of the two, seen in 85 patients, he calls the lateral-impaction fracture. In this type the blow is received on the side of the nose and produces four lines of fracture, of which one is horizontal, towards the junction of the nose with the forehead, and three are vertical, one being near the middle line and two lateral. Thus two loose fragments are formed roughly corresponding with the two nasal bones; the fragment on the side away from the impact is driven outwards, and that on the side of the impact is forced inwards and impacted under the other. The nose assumes a characteristic zigzag appearance with a flat horizontal slope on the side of the impact and a more vertical steep slope on the other side. There is, strangely enough, but little swelling, although digital examination may elicit abnormal mobility and crepitus. The second type, which Gerrie calls the vertical-impaction or depressed fracture, is usually the result of a terrific head-on smash: the nose is "bashed" in and the bones fragmented and impacted in a variety of positions. Damage to the soft tissues and bones is severe, and swelling quickly appears and masks the underlying deformity. Both types are usually compound internally, and the septum may assume any position.

Radiography helps to assess the damage; the routine at the Montreal General Hospital is to take a lateral film and a vertical exposure from above with the film held in the mouth. As time elapses it becomes increasingly difficult to replace the fragments, and this is therefore done as soon as possible regardless of swelling or laceration. Gerrie favours general anæsthesia, and finds that two hæmostat forceps with the tips wrapped in cotton-wool are satisfactory instruments for reduction, one being placed in each nostril under the nasal crest. Reduction of the lateral-impaction type may be difficult, but it is essential that the fragments should be disimpacted. The hæmostat in the nostril away from the side of impact is used vigorously to raise the overriding fragment, while that in the other nostril lifts the depressed fragment outwards. With the same hæmostats, or the blade of a duck-bill forceps, it is often possible to adjust the torn or dislocated septum so as to make a subsequent submucous resection unnecessary. Gerrie believes that an internal splint is indicated to provide support for the first few days and strongly advocates a modification of the rubber-covered silver-wire splint described by Watson-Williams[2] in 1931. He now uses an eighteen inch length of 19 gauge brass spring wire, bandaged round with a strip of raw latex rubber called Sterilastic, but he says that if this is unobtainable a no. 8 French catheter slipped over the wire is even more convenient though slightly more bulky. The middle inch of this wire lies against the philtrum of the upper lip; the wire on each side of this is bent so as to run first along the floor of the nose, then forwards and upwards to the bridge, and finally down along the under surface of the bridge to the nostril. Thus there is a triangle of wire in each nostril, the anterior limb of which supports the nasal bridge; it is introduced in a collapsed position, expanded inside the nose, and the two ends of the wire are then fixed by fine binding to the central portion on the philtrum. He considers such a splint indispensable in the vertical impaction fracture and reassuring and often helpful in the lateral-impaction type. He also favours an external splint of dental impression compound over a gauze dressing, but this is of far less importance.

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[1] Gerrie J. W., *Canad med Ass J* 1938, 39, 433.
[2] Watson-Williams E., *Brit med J* 1931, 2, 791.

LENDING OUR EARS

A CORRESPONDENT has been struck by Mr Walter Elliot's intention to earmark doctors for this and that. "Is it possible," he asks, "that he thinks we are cattle?"—and he doubts whether this is the way to secure the coöperation of an individualistic profession. Mr. Elliot has since written to him courteously agreeing that the phrase was not happily chosen, and no doubt the profession will in time recover from the shock of the metaphor. Nowadays indeed not even the possession of ears is essential for the earmarkee, for we are but taking our turn with lorries and Green Line buses. We can console ourselves moreover with Mr Elliot's expressed willingness to allow doctors the privilege, denied to dumb animals and mere machinery, of choosing our brand.

Lady PHILIP, who married the late Sir Robert Philip early in 1938, died in Edinburgh on Monday. She was the daughter of Joseph McGaw of Koobi, New South Wales, and a life-long worker in the anti tuberculosis campaign. In 1909 she founded the Paddington tuberculosis dispensary, of which she was hon. treasurer.

The fifth biennial conference, organised by the British Empire Cancer Campaign, will be held on Tuesday and Wednesday, March 14 and 15, at the Royal Society of Medicine. Application for cards of admission should be made to Mr W. H. Ogilvie or Dr R. W. Scarff, joint hon. secretaries of the organising committee of the campaign, at 11, Grosvenor Crescent, London, S.W.1.

In arranging for the admission of a child to the Evelina Hospital last Sunday the Emergency Bed Service for London brought the total of applications it has received to 5000. The service was started last June and it had dealt with about 3000 cases up to the end of 1938. This year calls have been more frequent, partly no doubt because medical emergencies are most common at this season, but also because London doctors are now realising the amount of labour saved by using the service to the full.

The British Association of Radiologists and the Society of Radiotherapists of Great Britain and Ireland have decided to amalgamate under the title of the Faculty of Radiologists. The work of the faculty will be carried on at the old office of the association, 32, Welbeck Street, London, W.1.

The medical department of the Board of Education is now at Alexandra House, Kingsway, London, W.C.2. Telephone: Temple Bar 8020; telegraphic address: Meducation, Estrand, London.

CONTROL OF THE COMMON FEVERS

RHEUMATIC FEVER

Reviewed by DR J ALISON GLOVER O B E, *Senior Medical Officer of the Board of Education*

RHEUMATIC fever (acute rheumatism) is a specific infectious disease probably conveyed by droplet infection, but its *infectivity* is of a low order, comparable with that of cerebrospinal fever or pneumonia. As in these diseases, cases usually are sporadic, but, even in these sporadic cases familial investigations suggest that the disease is communicable. In certain circumstances favourable to the disease its incidence is that of an epidemic infectious disease justifying the claim, made many years ago by Hirsch (1881), that rheumatic fever 'deserves an assured place among the acute infective diseases'.

Attack affords *no immunity*; the liability, particularly of children, to progressively severe recurrences is of paramount importance in the consideration of control.

Incubation.—In a large proportion of cases an attack of tonsillitis precedes the onset of rheumatic fever, usually by some fourteen days. In such cases it may be said that there is a double incubation period: first, the two to three days incubation period of the initial tonsillitis ("precursor fever" of Bradley), and then the "silent" or "lag" period, usually of fourteen days, between the tonsillitis and the onset (or recurrence) of rheumatic fever, which can be demonstrated in the incidence chart of an epidemic as well as in the clinical chart of the patient. The initial tonsillitis is, however, sometimes mild or unnoticed.

Age distribution and sex incidence.—Females are more susceptible than males. Under modern conditions in this country the disease seems to be changing its character and to be increasingly a disease of children between 5 and 14 years. Comparatively rare (though very serious) before the age of 5, the peak of incidence is reached at 8 years of age. Incidence continues high until 12 and then falls rapidly at puberty. In certain circumstances epidemics of the disease occur among adolescents.

Social incidence.—No disease has a more clearly defined "social incidence" than acute rheumatism, which falls twenty to thirty times as frequently upon the poorer children of the industrial town as upon the children of the well to do. Its incidence increases directly with malnutrition, overcrowding and bad housing, especially in urban conditions.

Seasonal incidence.—There are two maxima, one, usually the larger, in November, and one in January–February. It is significant that Close (1930) found that the incidence of tonsillitis reached its maximum in October–November.

Mortality.—The crude annual death rate from rheumatic fever has declined from 67 per million persons in 1901 to 22 per million in 1937, by far the lowest ever recorded. The previous lowest years were 1932 and 1936 when the rate was 28 per million. But it is of course, in the after effects—the permanent heart damage, lifelong disability and premature death—which may result from it, rather than in the low immediate mortality that the importance of rheumatic fever lies. The disease has a strong claim on the school medical service, for in the second half of school life, the period between 10 and 15 years, is the peak of its greatest mortality. Fig 1 shows its importance as a cause of death at this age period in 1937. Since, however, the total mortality from all diseases during the age period 10–14 years is low, the actual number of deaths represented by the percentages shown in fig 1 is comparatively small. During 1937, in the first half of primary school life—i.e., from 5–9 years—rheumatic fever accounted for 2·3 per cent and heart diseases for 3·5 per cent of all deaths. The mortality due to rheumatic fever in the age period 5–9 years is therefore relatively small compared, for example, with diphtheria, which, in 1937, a year of high diphtheria prevalence, caused 24 per cent of all deaths in children of this age group.

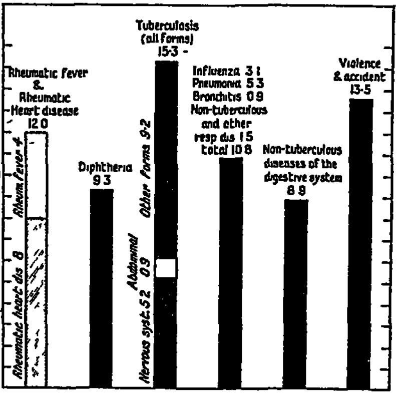

FIG 1.—Mortality from rheumatic fever and rheumatic carditis in the five year age period 10–14 years, compared with that of diphtheria, tuberculosis, pneumonia and other (non tuberculous) respiratory diseases, diseases of the digestive system and violence. The columns show the respective percentages of deaths from all causes during this age period. The deaths from rheumatic heart disease are estimated on the assumption that one tenth of the total deaths from heart disease during this age period are due to congenital heart disease and the rest to rheumatic heart disease. The figures are taken from "The Health of the School-Child," 1937.

The *cause* of rheumatic fever is still uncertain; although recent work[1] on the relationship of infection by *Streptococcus pyogenes* to rheumatic fever has greatly strengthened the theory, first stated by Poynton and Paine (1900), that the causal agent is a streptococcus, yet the possibility that the primary cause is a virus, and that infection by *S pyogenes*, though essential, is but secondary in ætiological significance, cannot be ruled out. For practical purposes, however and in the present state of knowledge measures of control are best based upon the view that rheumatic fever is one of the many results of infection by *S pyogenes*. Epidemiologically this view is supported (Galabin 1902, Longstaff 1904) by resemblances, now observed over 80 years, between the trend and oscillations of the mortality from rheumatic fever and those of other streptococcal diseases, scarlet fever, erysipelas, septicæmia, and puerperal fever.

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[1] Especially that of Griffith (1926–34), Collis (1931), Sheldon (1931), Bradley (1932), while Inger (1939) and Todd (1932) in this country and of Coburn (1931) and Coburn and Pauli (1932) in the United States.

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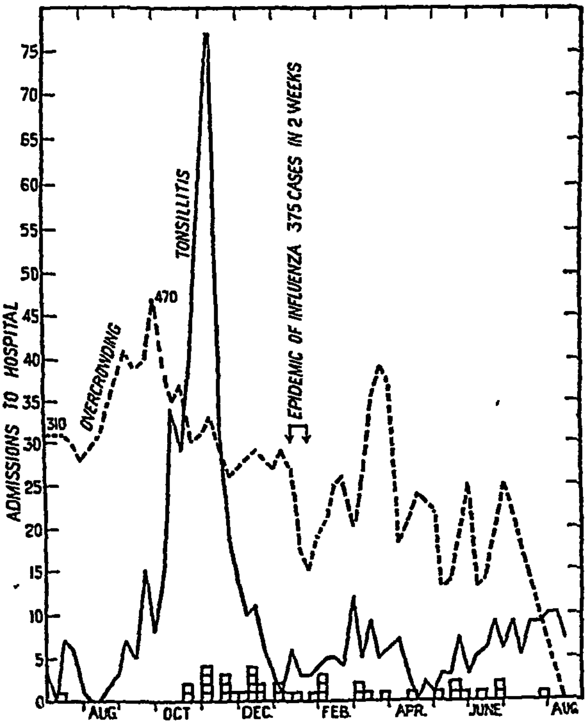

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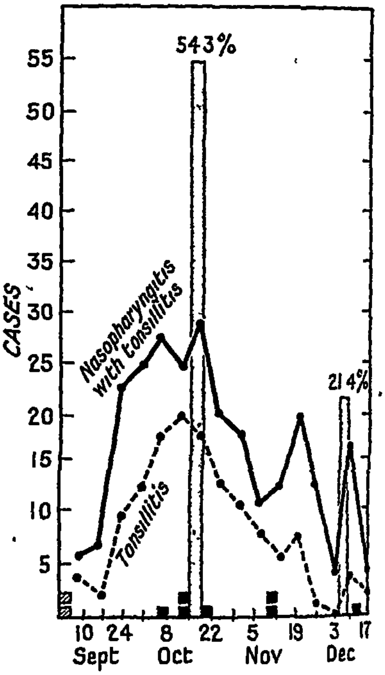

FIG 3—A small epidemic of acute rheumatism in a residential school with about 775 boarders, sleeping in nine large dormitories Weekly incidence of admissions to school sanatorium Continuous line = total weekly admissions for nasopharyngitis (including tonsillitis). Dotted line = weekly admissions for tonsillitis Each black square equals one case of acute rheumatism, while each shaded square equals one case of chorea Columns represent percentage of healthy boarders carrying *S pyogenes* on Oct 19 and Dec. 7 in samples of 105 and 112 respectively (Lovell et al 1934).

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(2) The rise of the carrier-rate of *S pyogenes* to a high percentage (40–50 per cent) and the concomitant great predominance of one serological type, the so called "epidemic strain", this constitutes the "carrier epidemic"

(3) The tonsillitis (or "case") epidemic

(4) The occurrence of cases of rheumatic fever These at worst seldom number a tenth of the cases of tonsillitis

In only very few of these outbreaks has any bacteriological evidence been obtained by the swabbing of the throats of large samples of healthy members of the closed community involved, hence the "carrier epidemic" is mainly hypothetical, but I have little doubt that, if such samples could be taken, the phenomenon of a "warning rise" of the carrier rate of *S pyogenes* would be detected and resemble that of the meningococcus, which occurs before outbreaks of cerebrospinal fever (*Spec Rep Ser med Res Coun*, *Lond* 1920, No 50, p 140) In certain circumstances, such as an extensive measles epidemic or a mixed epidemic of measles and influenza, a high carrier rate of streptococcus may arise with comparatively little overcrowding

To avoid or control such outbreaks the first essential is to reduce the carrier rate by spacing out, improved ventilation, and the prompt isolation of patients with tonsillitis Convalescence from tonsillitis should be carefully watched The course of training should be so graduated as to enable the newcomers to become acclimatised without excessive fatigue An ample ration of pasteurised milk and fresh fruit should be supplied for them The sterilisation of table ware seems desirable Mass tonsillectomy—i.e, a high proportion of tonsillectomised pupils—does not seem to diminish the liability of a school to epidemics of throat infection by *S pyogenes* or their sequelæ

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Two things are essential for successful convalescence, rest (with graduated resumption of activity) and prevention of relapse by the prevention of reinfection with *S pyogenes*, which might reactivate the rheumatism, and by increasing the general resistance of the patient by diet and open air régime We have no specific treatment which influences the course of carditis, we can only rely on the healing power which nature will exert if we allow the heart a minimal activity This is no easy matter, for the ever beating heart can only rest in the brief intervals between its beats, yet by prolonged and complete recumbency three things which tend to rest the never-resting heart are accomplished the number of beats is diminished, the rest interval between them is increased, and the hydrostatic resistance against which the heart has to pump is greatly lessened

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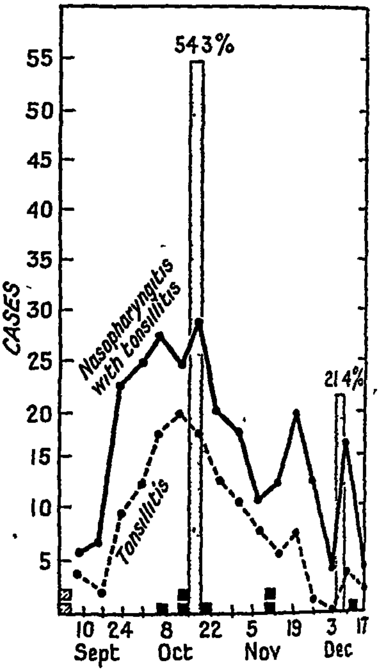

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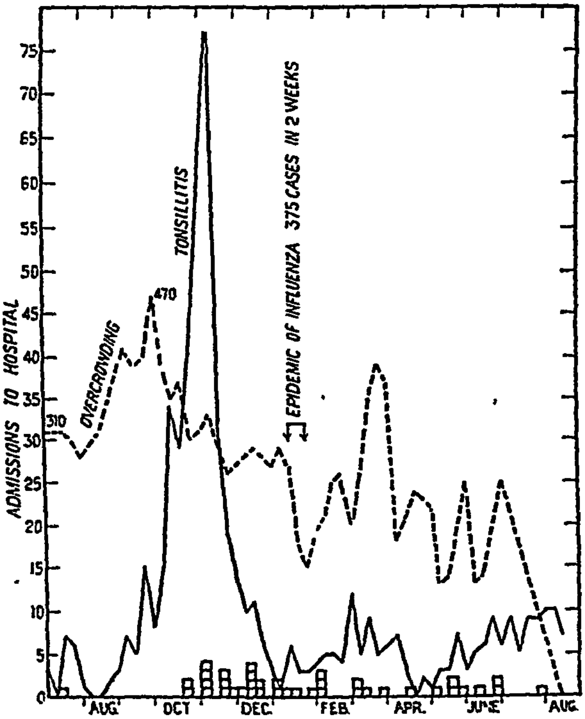

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The difficulty of providing this treatment, so vitally important to the recovery of the rheumatic heart, in the child's own home has been graphically described by Smith (1927) In the home of the less well-to-do child it is impossible In the ordinary convalescent home it cannot be obtained, for there the non-rheumatic children speedily become so lively in open-air conditions that the rheumatic child placed in their company finds his enforced recumbency still more irksome

After the acute stage has passed, and even before any physical activity has been resumed, appropriate education becomes an invaluable form of occupational therapy. Thus the treatment is best given in the special rheumatic school of recovery. Experience suggests that the provision of 1 5–2 beds per 1000 of elementary school-children is desirable.

(c) *Recurrences.*—A second attack is a more serious danger than a first, and a third attack more dangerous than a second. Thus the prevention of relapse is of the utmost importance Relapse is almost invariably due to reinfection by *S pyogenes* Carriers of this organism are so common that exposure to infection cannot be altogether avoided, and the chances of this happening can only be reduced The problem in the rheumatic hospital school is to house a community of children who are peculiar in that nearly all are already sensitised to streptococcal infection and simultaneously to guard against their reinfection, which might precipitate relapse and so undo all the benefit done by months of treatment, and, indeed, might have even more disastrous results. The danger of reinfection is very real, and the work of several institutions has been marred in the past by epidemics of relapses of acute rheumatism and subsequent carditis It is therefore the duty of any health or education authority, setting out to provide special accommodation for rheumatic children, to realise that the risk of such reinfection must be reduced to the lowest possible limits Thus, in planning accommodation for these sensitised rheumatic children, space and ventilation are of the utmost importance and should be combined with ample facilities for the immediate isolation of any child with respiratory infection A close watch for carriers of *S. pyogenes*, whether among children or staff, must be maintained, special attention being given to clinical inspection as well as to bacteriological examination. The milk-supply should be pasteurised A rheumatic child should never be sent to a scarlet-fever ward and, during a measles or influenza epidemic, should if possible always be nursed in a separate cubicle The prime necessity of avoiding any risk of the spread of streptococcal infection in these special wards demands a higher standard of floor space and inter-bed interval than that required for the ordinary residential open-air school Open-air wards with at least 80 sq. ft per bed and 4½ ft interval between the edges of adjacent beds should be provided

FAMILIAL INFECTION

The familial incidence of rheumatic fever has long been recognised, but the relative importance of diathesis, environment, and infection is disputed St Lawrence (1922) showed that the incidence of multiple cases of rheumatic fever in a group of families was as high as that of tuberculosis Paul and Salinger (1931), studying 15 rheumatic families, found that "non-specific" respiratory infections preceded the appearance of characteristic acute rheumatism, and that both primary attacks and recurrences in some members of the family have often occurred simultaneously with acute rheumatism and frequently at the same time as sore-throat bronchitis, bronchopneumonia, and skin rashes in other members Swift (1931) gives two excellent examples of similar family infections He quotes a case in which the mother of a rheumatic child frequently had a sore throat a short time before the appearance of a relapse in the child After tonsillectomy the mother's attacks of sore-throat ceased, and the child then became free from recurrences of rheumatism

Contact examination, a well-recognised procedure in the prevention of tuberculosis, has been neglected in the prevention of acute rheumatism The clinical examination of the throats of the contacts in the home and the investigation of their throat flora might help to prevent some cases of recurrence where a child who has recovered from acute rheumatism is in contact at home with a chronic carrier of *S pyogenes* or with a person suffering from streptococcal otorrhœa

DRUGS IN PROPHYLAXIS

The specific action of salicylates on the arthritis, pain, and fever of rheumatic fever is not accompanied by any specific action on the carditis Nevertheless, Schlesinger (1930) has produced strong evidence of the prevention of relapses of acute rheumatism in children who have already had one or more attacks by giving aspirin in substantial doses throughout the quiescent interval which follows tonsillitis. In the last year or two the great advance made in the treatment of infections due to *S pyogenes* by substances of the sulphonamide group suggests that the use of these preparations for tonsillitis may provide a new prophylaxis against rheumatic fever Cleminson (1939) has recently drawn the attention of school medical officers to the possibility of using M. & B 693 as a prophylactic against otitis media It is conceivable that such prophylactic treatment might also avert the risk of rheumatic fever following tonsillitis Thomas and France (1939) gave sulphanilamide continuously through two winters (15–20 grains daily for seven months without ill effects) to 30 patients with a recent history of acute rheumatic fever. None had a major attack of acute rheumatic fever or an acute β-hæmolytic streptococcal infection while taking sulphanilamide Of 30 control patients 4 developed five major attacks of rheumatic fever during the same period, 1 was admitted to hospital with an acute streptococcal infection, and 3 had acute illnesses which might have been of a rheumatic character.

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THE LANCET

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VIII.—ABDOMINAL AND PELVIC INJURIES

Wounds of the Abdomen

All penetrating wounds of the abdominal wall, upper part of the thigh, buttocks, loins and lower thorax, however small, must be carefully excised and explored to ascertain whether the peritoneal cavity has been opened. If it has, laparotomy must be performed in every case to find out whether the abdominal viscera have been damaged and to make any necessary repairs. If the upper part of the abdomen is involved the diaphragm must be carefully explored visually and digitally to ascertain whether a missile has passed through this structure into the thorax. In thoraco-abdominal wounds it will probably be necessary to open up and explore both the abdomen and the thorax.

Lacerating wounds of the abdominal wall, when caused by bombs, are often very extensive, and the patient may be completely or partially eviscerated and is often dead or beyond surgical aid. No time should be wasted on such cases in a casualty hospital unless there is a good chance of recovery. In all other cases prompt and thorough operation must be undertaken, and if there is a great rush of cases it may be better for patients with these abdominal wounds to be evacuated directly to a nearby base hospital or transferred to another casualty hospital where they can be operated on promptly, for in these cases minutes mean lives. Death results from hæmorrhage or peritonitis, as was shown by Sir Cuthbert Wallace in the war 1914–18, when out of 1288 cases 250 patients (about 1 in 5) were dying on admission, and of the 965 operated on 46 per cent. recovered, and of those with wounds of the hollow viscera only 35 per cent. recovered; hence peritonitis is apparently more fatal than hæmorrhage.

DIAGNOSIS

Great difficulty is usually experienced in diagnosing the condition of patients with abdominal wounds on arrival at the casualty hospital because they are already under the influence of morphine, which has been administered at the dressing-station to enable them to stand transport, and in many cases it is advisable therefore that these patients should be placed in a special ward and watched for a short while before operation is decided upon, but this waiting and watching must not be delayed more than one or two hours, for, as Sir Cuthbert Wallace so wisely remarks, "It is safer to look and see than to wait and see" in abdominal wounds. It must be realised that in some non-penetrating wounds, especially those caused by "blast" or crush accidents, considerable damage to underlying abdominal and thoracic viscera may have been inflicted, and a careful look-out must be kept for such cases in the receiving-room of every clearing hospital. Similarly, a missile can enter the peritoneal cavity without inflicting any damage to the viscera, but this is rare, and such a contingency must never be relied on as an excuse for not performing a routine laparotomy.

The clinical signs of intra-abdominal damage are very varied. A wound will be present, but it may escape notice, especially if situated elsewhere than in the abdominal parietes. We recollect a case in which a patient was obviously suffering from intra-abdominal hæmorrhage, found on operation to be [illegible] [illegible] and [illegible] but a [illegible] should [illegible] probably have [illegible] always [illegible] of the abdomen. [illegible] of the bowel. Another valuable [illegible] of the patient to [illegible] that the bowels have been moved [illegible] they have been [illegible] into the peritoneal cavity. [illegible] may be due to one of many causes [illegible] in most cases a sure sign of abdominal injury. It is wise to radiograph these patients if it is thought that a retained missile is present, for its position may indicate what viscera are likely to have been damaged; but no time should be wasted to secure this examination, which is not as essential as a rapid laparotomy. Occasionally a tag of omentum or even a coil of bowel may be found prolapsed from a perforating wound. They are commonly seen in lacerating wounds that open the peritoneal cavity. Their presence establishes the diagnosis, and they should never be returned to the abdomen before the patient is on the operating table and the wound is being properly dealt with. As a first-aid measure such protrusions should be covered with a moist dressing of sterile saline. Signs of internal hæmorrhage are often present and consist in general signs of collapse, but in these cases the patient is deadly white, seldom sweats, and is very restless, with gasping respiration (air-hunger), all four points indicating hæmorrhage rather than shock. Locally, the abdomen, which may be moving slowly on respiration, is very distended and tympanitic on percussion (in contradistinction to the superficial hyperæsthesia met with in inflammations).

TREATMENT

Since these patients are often very collapsed, it may be advisable to treat them preoperatively for shock. Fluids are especially useful in this respect but must never be given by mouth if perforation of the gut is suspected. In such cases an injection of saline per rectum or of gum saline intravenously or a blood transfusion should be given immediately before operation, except in internal hæmorrhage, in which operation and transfusion should be begun simultaneously.

Operation.—The first step must be exploration of the wound of entry and excision of the track; lacerating wounds must be excised and foreign bodies removed. If the wound has not penetrated the peritoneal cavity and the surgeon is satisfied that no intraperitoneal damage has been caused by the force of impact of the projectile, the wound is closed or dressed and the patient removed to the observation ward, where he should stay a few days. Laparotomy must be performed in every case in which the abdomen has been perforated.

If the wound of entry is situated in the anterior abdominal wall, it is well to include this if possible in the laparotomy incision, for the damaged edges of peritoneum can often be excised freely, but in wounds of the buttocks or back a separate laparotomy incision must be made Probably the best incision is a right paramedian, though a transverse incision gives excellent exposure It is essential that the primary incision be sufficiently long to expose the abdominal contents and to allow of free and thorough exploration An incision 9–12 in long should be aimed at, and this can be extended from the ribs to the pubes with impunity. It is far safer for the patient to get a thorough exposure without violent retraction of the wound edges, and this is not always realised by the operating surgeon at the beginning of his military career.

As soon as the abdomen is opened, if the patient is bleeding internally he is liable to collapse, and care should be taken therefore that intravenous transfusion is in progress before this stage of the operation is reached. Speed and teamwork are important. Some surgeons prefer operating without gloves, but we do not advise this procedure, which gives little, if any, increase of speed and gravely dirties the hands of the surgeon in a most undesirable manner A fæcal odour may be apparent or fæces met with on opening the abdominal cavity In this event a systematic and methodical search of the entire intestinal tract must be made from the cardiac orifice to the rectum ; otherwise small perforations, which are almost always there, may be overlooked, especially in the region of the fixed flexures of the bowel, which are not easy to reach and are very liable to perforation owing to their immobility Any hæmatoma near these flexures must always be incised and explored to find if perforation has taken place into the retroperitoneal tissues

Wounds of the *stomach and duodenum* should be sutured as they are met with, but in the *small intestine* it is better to get an idea of the total damage before starting to repair any perforations ; otherwise time will often be wasted in repairing small perforations which must subsequently be included in an adjacent resection The same applies to the *transverse colon* and *pelvic colon* The intestine must be searched foot by foot systematically. Where no perforation is present, the gut must be returned to the abdomen immediately after it has been examined. Where a perforation is found, the segment of gut should be left outside until the next two or three feet have been searched, when, if no other perforations are found, the perforation, if small, may be invaginated, or resection of the gut followed by end-to-end anastomosis may be performed if the bowel lumen is largely destroyed The *cæcum*, *colon*, and *rectum* are next examined and wounds in them invaginated and sutured, any retroperitoneal hæmatoma near them being incised and observation kept for a fæcal odour or a tear While the stomach is being examined, it is advisable to pass a hand above the liver and spleen to ascertain whether the diaphragm has been perforated ; and during the examination of the pelvic colon and rectum the bladder, and in women the other pelvic viscera, should be searched for any signs of damage

A competent surgeon should be able to open the abdomen, thoroughly search the entire intestinal tract, and close the wound within twenty minutes Minor repairs should take only half an hour, but resection and wounds of fixed hollow viscera take longer. Speed is important for the sake of the patient, but never at the expense of a thorough and systematic search of the intestinal tract Surgeons who habitually take an hour in the performance of a simple laparotomy are to be discouraged from undertaking abdominal work and would be better employed in wound excision and amputations on three or four patients in the same time

If there is *internal hæmorrhage* every effort should be made to locate it as quickly as possible and to arrest it temporarily by grasping the blood-vessels or by plugging solid viscera Blood may be coming from the omentum or mesenteric vessels, in which event simple ligation of both ends of these and repair of any rent in the structure are usually sufficient, but, if the mesenteric vessels have been extensively damaged, it must be ascertained whether the intestine is viable and whether peristalsis is present If they are not, resection and end-to-end anastomosis will be necessary. Hæmorrhage due to wounds of solid viscera is usually associated with considerable disruption The spleen or the kidney (if only one is involved) should be removed In the liver, suture of rents may be attempted after gentle curettage of the track, but usually plugging is necessary *Retroperitoneal hæmatoma* may be due to blood from the renal pedicle, kidney, vena cava, or iliac veins If this hæmatoma does not appear to be spreading or connected with a retroperitoneal bowel wound, no attempt should be made to incise it to find the source of the hæmorrhage—often an impossible task—but, if it is obviously spreading rapidly, an incision should be made and a search carried out in the line of the vena cava and iliac vessels for a bleeding rent

After repair of either perforation or hæmorrhage the abdominal cavity should be gently swabbed out with plugs soaked in warm sterile saline (or a suction apparatus used) and the abdominal wall closed without drainage. We entirely agree with Sir Cuthbert Wallace, who says · "The surgeon who cannot trust the peritoneum has no business to do abdominal surgery " In extensive lacerated wounds closure may be impossible, and in this event the ingenuity of the surgeon may be much taxed to lessen the wound area as far as possible, after which gauze dressings must be firmly bandaged on to prevent herniation ; but such patients seldom survive, and, if it is obviously impossible to close the abdominal wall, no undue time should be wasted on operation on these cases during a rush of casualties When retroperitoneal cellular tissue is infected—e g , perforated cæcum—the prognosis is grave and drainage essential

Wounds of the *diaphragm* are often accompanied by pain in the shoulder besides the signs of abdominal injuries If such a wound is very small, associated injuries in the chest are likely to be slight, and, unless there are very obvious signs to the contrary, no treatment should be given beyond excising the edges of the wound in the diaphragm and closing it with catgut sutures. If the wound is large, every effort should be made to close it, for the relief given to the patient is immediate and great as soon as the pleura is closed off Before closing the wound it may be possible to ascertain the amount of intrathoracic damage and then to deal with it through the opening in the diaphragm, though this is seldom possible and a subsequent thoracotomy will be necessary in many cases ; but this should be postponed till next day unless the chest symptoms are very urgent

Wounds of the *stomach* cause signs and symptoms very similar to those of a perforated gastric ulcer but there is also considerable hæmorrhage as a result of damage to the gastric vessels. The wounds are often of considerable extent, and their repair, which must be undertaken as early as possible, is by no means easy. The edges of the wound should be excised, hæmostasis secured, and the wound closed by a single layer of invaginating sutures, which must pass through the entire thickness of the wall to ensure hæmostasis and the approximation of the peritoneal surfaces. For this and all other intestinal work a continuous suture of the Connell type is to be advocated, for it fulfils both these requirements and saves the extra time necessary for applying a superficial layer of stitches.

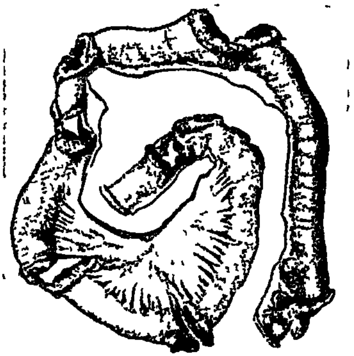
Wounds of the *duodenum* are rare but often fatal. Sutures hold badly in the duodenum, and, if the posterior surface of the second part is involved, it is necessary to mobilise the bowel by an incision through the peritoneum to its outer side, and often the common bile duct is involved and requires repair. In every case duodenal wounds must be sutured, excision being incompatible with life, and drainage without sutures being invariably fatal.

Wounds of the *small intestine* constitute the majority of abdominal injuries. Early operation gives a better chance of recovery, for after injury the bowel is temporarily paralysed and therefore the escape of fæcal contents is not so frequent as in wounds of the stomach and large intestine, in which there is continuous leakage. These wounds are frequently multiple and, owing to movements of the bowel, may be found out of a direct line of the projectile causing them. In every case the mucosa is everted, and in minute wounds this may close the orifice temporarily.

When destruction of the bowel wall does not extend beyond half its circumference, the wound can be safely closed, for the lumen will not be too greatly narrowed if the suture line is made across the long axis of the gut, but it is wise to examine two or three feet of the bowel next to the first perforation disclosed, for very frequently multiple injuries may necessitate resection (see figure). Repair rather than resection should be done whenever possible, for the chance of recovery is very much greater with repair than with resection, owing to the much greater shock following and the greater damage necessitating this latter procedure; but resection is always necessary when (1) most of the bowel wall has been destroyed; (2) the wounds are so closely approximated that their closure will leave a patchwork of badly nourished tissue liable to slough; and (3) the mesenteric vessels are so extensively damaged that a large loop of bowel is deprived of its blood supply. Three or four inches of bowel will survive if separated from their mesenteric attachment, but in all cases of damage to the mesentery, especially near its root, care must be taken to ascertain whether peristalsis is conducted over the damaged segment of bowel, and whether after digital pressure its blood supply is re-established. If neither of these signs is present the bowel should be resected, but it must be realised that the mortality of resection is about double that of repair. Suture can again with advantage be carried out with the single layer Connell stitch.

Wounds of the *large bowel* are usually jagged tears with bruised edges and, in the case of the ascending and descending colon and rectum, are often extraperitoneal, in which event laceration is present and in the early stages the rupture of the bowel may not be detected, with the result that cellulitis and even gas gangrene may supervene. Intraperitoneal wounds call for prompt treatment on the lines already advocated for wounds of the small bowel. In retroperitoneal wounds the bowel should be freed from the hæmatoma by an incision on its outer aspect, the wound carefully closed, and the hæmatoma drained by a counter-incision into the loin or the perineum. In wounds involving the rectum and lower colon it is often advisable to perform a temporary colostomy, especially if bone or bladder is extensively damaged.

Wounds of the *liver* are usually fatal owing to the tendency for a spreading infection to occur, and this tendency is undoubtedly increased by plugging to stop hæmorrhage. All obviously damaged liver tissue should be removed by gentle curettage, and any foreign bodies in the track similarly dealt with; after which, if possible, the track should be obliterated with deep sutures, plugging avoided at all costs (if this is feasible), and the abdomen closed without drainage unless a plug is left in situ. Slight jaundice is to be expected for forty-eight hours in these cases, but its persistence after that time, especially if accompanied by epigastric discomfort, drowsiness, and persistent high temperature or rigors, is of grave prognostic significance.



Multiple wounds of a coil of small intestine, produced by a single fragment. Those on the antimesenteric border could have been repaired, but there are three others where the bowel is almost completely divided, and the whole coil was therefore resected.

Wounds of the *spleen* and *kidney* call for removal of the damaged organ, but it must never be forgotten that damage to these organs is nearly always accompanied by damage to the adjacent colon, and careful search must be made for such damage, which, if present, must be dealt with after arrest of the hæmorrhage.

Pelvic Injuries

Injuries to the pelvic viscera under war conditions are invariably accompanied by gross damage to the sacrum or the pelvic bones, portions of which are often carried into the viscera and greatly increase the extent of the wound in these. *Compound fractures of the pelvic bones* must be dealt with on the same lines as compound fractures elsewhere, by cleaning, removal of fragments, support of the patient's pelvis with a firm flannel bandage, and bandaging the ankles and knees together. *Fractures of the sacrum* are dealt with in the same way as those of the pelvic bones, but careful examination must be made to ascertain if any nerve has been damaged, in which event immediate suture will be necessary. When, as so often happens, compound fractures of the sacrum are complicated by damage to the rectum, a temporary colostomy will go far to limit infection with extensive sloughing and often fatal results

Wounds of the *rectum* have already been dealt with under wounds of the large bowel (see above).

Wounds of the *bladder* are usually both extraperitoneal and intraperitoneal in these cases and must always be sought for in any fracture of the pelvis. *Extraperitoneal rupture* of the bladder *per se* is unlikely to be met with except in simple crush fractures of the pelvis due to the patient being buried by falling masonry. When the bladder is torn at its neck, urine escapes into the pelvic cellular tissues and the cave of Retzius and can often be detected on rectal examination by a boggy sensation in the pelvis If, as often happens, the triangular ligament is torn, the perineum will be distended, œdematous, and boggy; this swelling will increase if the patient attempts to pass urine; and the passage of a catheter will reveal blood in the urine Later this extravasation of urine extends to the scrotum, penis, and abdominal wall

Extravasated urine must be let out and the hole in the bladder closed by operation as soon as possible. Of these two objects the first is the more important, and the second may be impossible Free incisions, therefore, should be made wherever the extravasation appears. This may be necessary in the perineum but is more commonly required in the suprapubic region. In the latter event the bladder should be opened suprapubically and the wound sutured if possible. The extravasated areas are washed out with warm saline and tubes introduced · one into the bladder to drain it, and several into the areas where the urine has been extravasated The length of time these tubes remain in will depend on how rapidly the condition settles down and granulations and fibrous tissue form Drainage is likely to be necessary, however, for at least five or six days It must be remembered that at times the rupture in the bladder is both extraperitoneal and intraperitoneal

Intraperitoneal rupture, which is common in these cases, leads to suprapubic pain with inability to pass water, and the passage of a catheter draws off no urine, though often a little blood. If a silver catheter is used, the point can often be passed through the rent in the bladder and felt against the abdominal wall. This condition is often complicated by perforating wounds of the bowel, and, when laparotomy is performed for repair of the wound of the bladder, the intestines must be searched for possible damage After the bladder wound has been closed, the pelvis should be sponged out, and no drainage of the peritoneum is necessary; but, after the bullet track has been cleaned and any extraperitoneal damage repaired, perineal drainage is generally advisable, usually along the wound track

AFTER-COMPLICATIONS

Following any of the forementioned injuries, the usual after-complications of any intra-abdominal injury may be met with, but in these cases ileus is particularly likely to develop These complications should be dealt with on the lines laid down for civil practice; hence their treatment is not given in this article

AFTER-TREATMENT

After-treatment is on the lines commonly adopted in civil practice, but it must be remembered that these patients are often very collapsed and suffering from shock before operation, and that therefore the ingestion of fluid as soon as possible is of great importance, and they should not be kept from food longer than is absolutely necessary. The only reason for restricting food and drink after these operations on the bowel is the inability of the patient to retain and digest it. As a general rule, the patient can be given fluid by mouth immediately on recovering from the anæsthetic, but the quantity of this should never exceed a medicine-glass full at a time, though this may be repeated at intervals of a few minutes. As regards solid food, the patient's wishes and appetite are usually a safe guide, and certainly most of these patients are far more comfortable and their progress is more satisfactory if they are allowed to eat. A light solid diet can be given after the first forty eight hours. Soda-water, champagne, and other gaseous drinks are better avoided, for they tend to produce flatulence and discomfort.

In most of these cases an aperient may safely be given at the end of forty-eight hours. If the patient is distended and uncomfortable before that time, a glycerin enema or suppository often gives great relief; if this fails, pituitary (posterior lobe) extract or Doryl, 1 c.cm. may be given hypodermically.

MULTIPLE INJURIES

In all cases it must be recollected that wounds of other parts of the body, especially the chest, may be present, and these must be dealt with at the same time as the abdominal injuries if possible, but if the patient is very shocked it is wiser to postpone an extensive chest operation until the next day, provided no great respiratory distress or internal hæmorrhage contra-indicates; and in cases of internal hæmorrhage it must be realised that the depletion of the circulation tends to increase the risk of infection and gangrene in limb wounds.

SCORPION BITE

POISONING by scorpion bite causes symptoms resembling those of bulbar lesions. From this de Magalhaes was led to suggest that the poison does in fact produce such lesions, and E. F. Barros claims to have shown that this is true at least of poisoning by the scorpion *Tityus serrulatus* in Brazil (*Hospital, Janeiro*, August, 1938, p. 317). De Magalhaes, he says, spoke of an "acute syringobulbia" and went on to point out that by attacking the nerve centres in the bulbar region (or its different representatives in the ascending zoological scale) the arthropod can best paralyse its prey before devouring it. The scorpion reaches the bulbar region of its prey through the selective action of its venom, whereas the wasp, sphex, directly stings one of the main nervous centres of the caterpillar which it provides for its young to eat. De Magalhaes is not satisfied (*Ibid*, January, 1939, p. 173) that the effects of a scorpion's bite are due to the bulbotropic toxin alone, for he has observed other actions, notably on the blood (hæmolysis, leucocytolysis, agglutination, inhibition of coagulation, and alteration of viscosity, density, and hæmoglobin percentage), fats, proteins, and the endothelium of blood-vessels, leading to hæmorrhage. He maintains, however, that these actions are subordinated to the neurotoxin, which exerts its influence both peripherally (intense pain hyperæsthesia, and paræsthesia) and centrally, and that the venom of *T. serrulatus* and *T. bahiensis* is specific for the nerve-endings of pain sensation in the skin but not for the nerve centres of the sympathetic or cerebrospinal nerves. Injected into the skin in quantities insufficient to produce pressure effects it causes intense pain, but there is no pain when it is injected intravenously. Intravenous injection produces immediate peripheral vasoconstriction, but subcutaneous injection is followed by a lag before peripheral vasoconstriction takes place. The poison also has a selective action on the cortical neurones, causing convulsions, disorders of speech, and delirium.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations Each contributor is responsible for the section for a month, his name can be seen later in the half yearly index

FROM AUTOLYCUS

IV—BUSMEN'S HOLIDAYS

I ENDED my last article with a somewhat cynical reflection upon the kind of qualification that seems so oddly to have importance in the matter of addresses to medical societies I proceed to discuss—in a less jaundiced mood I trust—the wholly different affair of medical wanderings in the United States A Dominion Doctor in these columns has recently deplored the dearth of hospitality available here to visitors from abroad I do not propose to consider this burning question, but no one who visits the States from this country can have any complaint on this score, for the hospitality he will be offered is generous to a degree and inspired by a thoughtfulness that defies imitation

* * *

I have visited America on two occasions, for the first time as a newly qualified man wishing to see the American hospital scene, and then some years later as a kind of "loan exhibit" to a medical school where for two months I took charge of an outpatient clinic and gave some lectures and demonstrations On the first trip I reached New York armed with a small sheaf of letters of introduction On the morning after my arrival, grasping one of these, I set out for a hospital a member of whose staff I wished to see At the porter's lodge I named my prospective victim and was told he was not expected for an hour The porter, a kindly soul, invited me to pass the time by a visit to the public morgue which was conveniently situated a few blocks away There, he assured me, I should see something that would curl my hair for me The suggestion certainly had the charm of the unexpected, but I had not come to New York for a permanent wave though I lacked the courage to say so I departed therefore in the direction indicated and spent the allotted time walking the drab East Side streets On my return I was greeted by the physician whom I sought and shot my letter at him I could see the porter, clearly a firm believer in the American doctrine that all men are born equal, itching to ask me about the morgue, so I kept up a running fire of chatter until my guide led me off to the clinical lecture he was about to give This proved to be an equally embarrassing experience because after almost every statement he appealed to me, whom he had introduced to the class as a distinguished physician from London, for corroboration of his remarks, a function for which my juvenile appearance and obviously terror stricken mien ill fitted me It appeared that his ruling passion was for breast-feeding, and the theme of his remarks the generous endowments for this purpose presented by the patient under examination I was invited to step out in front so that I might take a closer view, and was called upon to endorse his analogy that the twin organs in question were like Derby hats They were, and I prayed silently that an outsize Derby hat might at that moment descend from Heaven and cover my blushes None did, and before I could get back to my seat I was forced to palpate the objects of his admiration Indeed, such was his enthusiasm that for one horrid moment I almost feared I might be asked to sample their wares

This harrowing experience cured me of my desire to explore American medical science any further I thereupon tore up my other letters of introduction, committed them to the only source of flowing water available, since there were no fires handy, and made of the rest of my holiday a less earnest affair than had been originally contemplated when I had asked an indulgent parent for the price of the trip

* * *

My second trip was a horse of quite another colour, and was as near a success as I shall ever achieve Yet even this had its minor set-backs, mainly gastric owing to my inability to stand up to the magnificent repasts that punctuated my night life, and an incapacity to metabolise the synthetic gin that loomed so toxically in the perpetual cocktails of those dark prohibition ages Yet there were other transient embarrassments, too One day while eliciting a history from a patient in the clinic I found great difficulty in understanding his quaint articulation This led me, rashly enough, to embark on a disquisition about dysarthria As he caught the drift of my remarks I saw a tense and warning expression dawn on the face of the attendant medical registrar I edged towards him round the couch, and he towards me As we met I heard his whisper "That's not dysarthria, that's South Carolina" Most of the audience heard his whisper, too, and the rest of my remarks were drowned in universal laughter During my stay I planned to spend a week-end with an old friend in a large industrial town in Pennsylvania I made the journey by night and on stepping from the train with that somewhat exhausted and dishevelled feeling that is part of American night travel I was greeted by the news that I was billed to address the local medical society that night It turned out to be a very warm evening and the guests in what seemed incredible numbers sat about in their shirt sleeves, their coats hanging over the backs of their chairs, belted and displaying those curiously cut trousers, horizontal at the top edge as though designed to permit of lumbar puncture without further disrobing on the part of the wearer The president took the chair, chewing and smoking alternately a large and drooping cigar and when it ceased to draw—being waterlogged—he continued to chew, the cigar tip moving rhythmically up and down like a myograph lever as he did so, a sight that fascinated me to such a degree that I could not take my eyes off it As I gave my address I could see this movement out of the corner of my eye, and with what self restraint I concealed my exasperation need not be told Finally, after a veritable orgy of mutual congratulation, I got my release, but I was not yet finished with our president, for as we strolled to his home my host remarked "Our president was very pleased with your address, he spoke of it in very moving terms" "Oh," said I, bridling pleasantly, "what did he say?" "What did he say?" repeated my host, "he said 'that guy's no slouch'" This particular linguistic construction was new to me, and I meditated upon it as I lay in bed waiting for sleep that night I finally decided to make a note of it, so that if my career should meet some unforeseen or tragic end before I left the States, it might be incised as an epitaph upon my tombstone

There are moments in such a tour when a wave of nostalgia passes over the travelling Englishman I became a martyr to them, but not unexpectedly, and I had brought with me the antidote—namely, Mr. Pepys' Diary and Tristram Shandy. Mr. Pepys had been a delightful acquaintance of mine for years, but ever since he has been a dearly loved friend. Tristram Shandy, too, proved a companionable fellow, and no one should leave these shores for the States on a stay of any length without these two travelling companions. As G. K. Chesterton truly remarked, "there's nothing like travel for narrowing the mind."

* * *

When the time for my return to England was at hand I was reminded that before I should be allowed to embark I should have to show an income-tax receipt for a handsome cheque in dollars I had received from the hospital where I had been working. I duly presented myself at the tax collector's office This official did his daily good deeds behind a little wooden shuttered window like a railway station ticket office. I thumped on this, and in a few seconds the door shot up and disclosed a choleric individual in shirt sleeves, smoking the inevitable pultaceous cigar. I explained my business, which quite surprisingly failed to cheer him up. This should have warned me not to trifle with the representative of the United States Treasury, but that devil of irresponsibility that has got me into so much trouble drove me to remark as I collected my receipt "I should like you to arrange that this modest sum goes towards settling the British War Debt" The outward signs of an unfinished struggle for appropriate utterance passed over his baffled face as I turned hastily to the door, and passed unregretted from his sight. It was worth the dollars I should have had to pay in any case, but I still wonder whether the people of the United States know the whole truth of the Englishman's efforts to square this little account of the last war

* * *

Now all this, as I am aware, is not quite the usual account given of medical trips to the United States by returned visitors, but then edification is not my aim, nor to tread the beaten path of travel memoirs Not least among the valuable things I learned was that a 6B lead pencil makes the best of all skin pencils, is excellent for filling in crossword puzzles, or for writing on the stiff cuff of a boiled shirt No home should be without one.

This concludes the four articles from Autolycus Next month A Part-time Professor will be responsible for these columns.—ED, L.

PUBLIC HEALTH

Metropolitan Water

THE thirty-second annual report (for 1937) on the examination of the London water-supply, which has just been issued (London. P S King and Son. 10*s* 6*d*), was written in draft by Lieut-Colonel C. H H Harold, who died on July 19 of last year, and has been completed by Mr. Denison B. Byles, deputy-director of water examination In these circumstances one misses the discussion of problems which marked the annual reports of Houston and Harold, but the data are there for readers to study and draw their own conclusions

The keynote of the report, whether research or routine is considered, is watchfulness; and the need for this is made abundantly clear when it is realised that the polar bear and the eider duck (in their native habitat) appear to be the only animals exonerated as carriers of the *B. coli* With regard to the sea-gull Houston stated in 1930 " . . even on the most conservative estimate . . each gull may per day contribute 50 to 100 million *B. coli* to a waterworks Most of this filth will reach the water directly or be liable to be washed in with each successive rainfall" At Belfast Adams in 1928 reported the isolation from the droppings of gulls of organisms indistinguishable from *B. typhosus* The duck, goose and hen are all proven carriers of food-poisoning organisms, as also are pigs and cows. These facts alone render watchfulness imperative.

The fact that the recent epidemic of typhoid fever at Croydon was traced to contaminated well water led to increased vigilance over the Board's well supplies The frequency of sampling was greatly increased, but the results showed the high reputation of these well supplies to be justified; minor irregularities were covered by chloramine treatment The results obtained by chloramination (p 5) are striking The percentage of first-class samples, giving negative results for typical *B. coli* in 100 ml of water, was not lower than 96 from any class of supply in 1937, and the total filtered supply, including some unfiltered waters, of 310 million gallons a day yielded 99 per cent of first-class samples The progressive improvement of the supply is shown by the following sequence of first-class samples: 1933, 85 5 per cent, 1934, 88·3; 1935, 95 7; 1936, 96 5 per cent, it appears that the asymptote will soon be reached

The Cobbins brook, into which the Epping sewage effluent is discharged, continues to be watched although the outbreaks of paratyphoid in that town occurred as long ago as 1931 (260 cases), 1933 (22 cases) and 1935 (2 cases) The sewage and effluent from Epping continue to yield frequent evidence of the persistence of the paratyphoid organism although, it is suggested, on the whole the figures seem to point to a very gradual decrease Comparative experiments on the sewage and effluent using Wilson's direct-plate method and Szper's enrichment method (preferably with double strength medium) confirmed the conclusion in the previous report that "There would appear little advantage in the use of enrichment media for effluents rich in pathogens, and here Wilson and Blair's is definitely to be preferred, but when dealing with polluted waters necessitating the examination of large volumes, Szper's medium holds considerable promise of success" A comparison of enrichment media for the primary isolation of coliform bacteria has led to the substitution of a tube of brilliant-green bile broth for one of peptone water in routine tests, and citrate solution with brom-thymol blue as a pH indicator has been introduced as a differential test for members of the coli-aerogenes group.

The work of the biological section continues to be usefully developed The chemical section contributes among other things, a useful discussion of the deterioration of sand filters by the deposition of calcium carbonate on the sand grains

Continuous Towel Cabinets

The London County Council education committee are now trying out automatic continuous towel abinets in their schools The machines contain a oll of towelling 50 yd long by 1 ft wide which is ed out in lengths, and the soiled towelling is automatically returned to the machine after use so that t cannot be used a second time and does not come n contact with the clean roll No charge is made for he installation and hire of the machines, but *1s 9d* s charged for laundering each roll A roll will serve for about 200 washes, so that the cost is only a tenth of a penny per wash If the machines ensure that no child dries itself on a towel previously used by a fellow, they may do much to prevent the spread of scabies, which has recently been increasing in many parts of the country, and also of ringworm, impetigo, and several forms of ophthalmia—all major nuisances of school medicine

Influenza and Pneumonia

The decline in the number of deaths attributed to influenza, in the great towns of England and Wales, that took place towards the end of January has not been maintained In the week ending Feb. 11 265 such deaths were reported compared with 210 in the previous week and 173 in the last week of January At the same time notifications of primary or influenzal pneumonia have risen rather sharply to 1817, compared with 1442 and 1512 in the two previous weeks, and in the country as a whole the level is now 9 per cent above normal Nearly all parts of the country have shared in that rise, but it has been particularly marked in Yorkshire Deaths from influenza and notifications of pneumonia both show increases in towns of the midland and southern counties, including London, so that while the position in the earlier affected north west areas appears to be improving there is clearly some sign of an extension of the infection, whatever it may be, to other parts of the country Influenza cases are being admitted to some of the London fever hospitals

According to the latest report of the health section of the League of Nations influenza was prevalent in Copenhagen at the end of January, but was declining in Hungary and Switzerland

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED FEB 11, 1939

Notifications —The following cases of infectious disease were notified during the week Smallpox, 0, scarlet fever, 1077, diphtheria, 1280, enteric fever, 28 (24 "expected"), pneumonia (primary or influenzal), 1817, puerperal pyrexia, 181, cerebrospinal fever, 30, acute poliomyelitis, 14, acute polio-encephalitis, 1, encephalitis lethargica, 3, dysentery, 48, ophthalmia neonatorum, 92 No case of cholera, plague or typhus fever was notified during the week

The number of cases in the Infectious Hospitals of the London County Council on Feb 17 was 3360 which included Scarlet fever, 658 diphtheria 913 (carriers, 42) measles 2, whooping cough, 789 puerperal fever, 10 mothers (plus 10 babies), encephalitis lethargica, 302, poliomyelitis, 4 At St Margaret's Hospital there were 22 babies (plus 12 mothers) with ophthalmia neonatorum

Deaths —In 126 great towns, including London, there was no death from smallpox, 1 (0) from enteric fever, 1 (0) from measles, 3 (1) from scarlet fever, 17 (3) from whooping-cough, 29 (2) from diphtheria, 50 (10) from diarrhœa and enteritis under two years, and 265 (41) from influenza The figures in parentheses are those for London itself

There has been some rise in the number of deaths attributed to influenza the totals for this week and the six preceding weeks (working backwards) being 265, 210 173, 223 214, 144, 89 Of these deaths 110 were reported from the South eastern Area, Ilford contributing 5, 107 from the Northern Area Manchester contributing 13 Leeds 9, Huddersfield and Sheffield each 8 Bradford 6, and 61 from the Midland Area Bristol contributing 10, Leicester 9 and Birmingham and Nottingham each 8, Ipswich and Rhondda each reported 4 Fatal cases of diphtheria were scattered over 23 great towns Harrow reporting 3 no other great town more than 2 Newcastle on Tyne had 2 deaths from whooping cough East Ham reported the only death from enteric fever

The number of stillbirths notified during the week was 274 (corresponding to a rate of 40 per 1000 total births), including 31 in London

SPECIAL ARTICLES

MEDICINE AND THE LAW

Patient and Healer The Question of Undue Influence

THE successful claim against a spiritualist in Chennells and Dodd *v* Bruce brought out afresh the legal effect of undue influence in the relations between patient and spiritual adviser or patient and healer Miss Marjorie Dodd, a civil servant, was seriously injured in a traffic accident From the date of the accident until her death she was so ill that her affairs were administered by her sister, Miss Emmeline Dodd, as her agent Miss Emmeline Dodd gave evidence that her deceased sister's accident caused concussion, cerebral hæmorrhage and meningitis Mrs Bruce, the defendant, used to massage her head round the eyes Mrs Bruce was a spiritualist and Miss Emmeline Dodd and a third sister used to attend her séances, paying a shilling each at each occasion Mrs Bruce, acting as the medium, went into what appeared to be a trance, she then spoke in a guttural voice which she ascribed to her "control," a North American Indian called "Grey Feather" Grey Feather advised Miss Emmeline Dodd to "keep on fighting" in the claim for damages for Miss Marjorie Dodd's accident Application was made to the Poor Persons Department at the Law Courts and eventually, with the help of the solicitors and counsel assigned, £1500 was received in settlement of the claim At a subsequent séance Grey Feather, speaking through Mrs Bruce as medium, expressed the wish that Mrs Bruce should receive some part of the £1500 as reward for her services, he suggested £200 A few days later Mrs Bruce, meeting the third sister in the street, told her that she had learned at another séance that the spirit world was seriously perturbed at the delay in paying this sum At a later séance the sisters were told that the amount had gone up to £400 and must be paid Miss Emmeline Dodd thereupon gave Mrs Bruce a cheque for £400 This sum the executors, Mr Chennells and Miss Emmeline Dodd, afterwards sought to recover from Mrs Bruce on the ground that it had been obtained from the deceased sister's estate by fraud or undue influence Mr Justice Hallett was not prepared to find that there had been fraud, but he had no doubt that the relationship of patient and healer had existed between the dead sister and Mrs Bruce and that Mrs Bruce had stood in the relationship of spiritual adviser to Miss Emmeline Dodd, the plaintiff A person in Mrs Bruce's position must not use that position to obtain pecuniary advantage for herself

Mrs Bruce had put in a defence admitting that she was a spiritualist and that, at the request of the sisters, she had given them help and advice She contended, however, that the £400 was a voluntary gift in no way induced by fraud or undue influence. Mrs Bruce did not appear at the trial and was not represented. This was a pity since there was a novel point of law to be argued The undue influence, resulting in the cheque for £400 being paid, was not exercised on Miss Marjorie Dodd who owned the money but on Miss Emmeline Dodd who was merely looking after her sister s affairs at the time The judge thought that, as a matter of principle, it would be wrong to water down the doctrine of undue influence and to limit it to those cases where the undue influence was directly exercised upon the actual owner He further held that there was no consideration for the payment of £400 Judgment was given for the plaintiffs with costs Last Monday Mrs Bruce appeared in court and asked for a new trial on the ground that she had been in Australia and had only now returned; she had been unaware that the case was coming on; the notice of trial had apparently been sent to a solicitor who had ceased to act for her. Mr Justice Hallett, remarking that a defendant who went to Australia with a charge of fraud against her did not deserve much sympathy, ordered that the judgment should be set aside if Mrs Bruce paid the costs of the action and of the present application within 14 days, otherwise the judgment would stand

The classic authority on this subject is Allcard *v.* Skinner (1887) where A was introduced by N, her spiritual director and confessor, to S, the lady superior of a sisterhood A became an associate of the sisterhood, passed the grades of postulant and novice and eventually became a professed member, taking (amongst other vows) the vow of poverty. It was held that, although she had voluntarily and on independent advice entered the sisterhood with intent to leave all her money to it, yet, since at the time when she made the gifts she was subject to the influence of S and N, she would have been entitled to restitution on leaving the sisterhood It is right and expedient, said Lord Justice Lindley, to save people from being victimised by others Courts of equity do not set aside such gifts on the grounds of folly, imprudence or want of foresight, but to prevent people from being forced, tricked or misled. The equitable doctrine of undue influence was developed out of "the necessity of grappling with insidious forms of spiritual tyranny and the infinite varieties of fraud" In an earlier case of medical relationship, Dent *v.* Bennett (1839), a patient aged 85 agreed to pay his doctor £25,000 a year for medical and surgical assistance for the rest of his life The contract was set aside on the ground that the patient's signature must have been obtained by fraud or undue influence In Morley *v* Loughnan (1893), the defendant, a man of no means, member of a religious sect known as Exclusive Brethren, was employed as travelling companion to Mr Morley, an epileptic subject with a large fortune Mr. Morley, being in a low and morbid state, allowed Loughnan to regulate his diet and medicine and placed nearly all his money at his companion s disposal. Loughnan obtained from him some £140,000

The court recalled Lord Justice Bowen's words in Allcard *v* Skinner, that there was "a fetter on the giver's conscience" which required a gift, even though in fact freely made, to be set aside on the ground of public policy. Though the degrees of dominion exercised by the dominant over the servient mind vary in all these cases, and though the relationship of doctor and patient or of solicitor and client introduces special opportunities and special conditions, the principle is always the same. The courts regard it as pedantry, not public policy, to objec to trivial gifts; yet circumstances trivial in them selves—e g, deafness or blindness—have been hel to reinforce the presumption of undue influence. Th position of doctors who benefit under their patient wills is, as is well known, another occasion whe courts are inclined to inquire closely into all th circumstances.

PARIS

(FROM OUR OWN CORRESPONDENT)

AGITATION AGAINST DIPHTHERIA VACCINATIO

IN the summer of 1938 vaccination against diphtheria with Ramon's anatoxin was made compulsory in France by law The comparatively peacefu passage of this legislation seemed to augur well fo the future, but the rumblings of dissent have recently gathered force, and on the evening of Feb 15 severa thousand people collected in the Salle Wagram t listen to denunciations of Ramon and all his works. *A sprinkling of doctors on the platform* was a reminde of the old biological truth that all the sheep in flock are not necessarily white Some of the speaker took advantage of the occasion to abuse not onl anti-diphtheria vaccination but also all the vaccine and sera fathered by the Pasteur Institute. Th success of this emotional evening had been undermined by the well-organised publicity recently give to the arguments in favour of anti-diphtheria vaccination, and it is doubtful if the meeting achieved muc more than a series of pleasant thrills The wind ha also been taken out of the protestants' sails by communiqué issued on Feb 15 by the prime minister M Daladier, categorically denying rumours of death in the army and navy as a sequel to anti-diphtheri vaccination.

CAMPAIGN AGAINST TROPICAL DISEASES

The present tendency of Frenchmen to think in terms of Empire is illustrated by the appointment at the French Colonial Office of an advisory commission on trypanosomiasis The commission is given a free hand to study and report on every aspect of the disease and to make proposals for combating it It is to consist of the inspector-general of the colonial health service, the pharmacien-général of the colonial office, and twelve others to be chosen by the Société Exotique of Paris The commission may also coöpt members in a consultative capacity.

PASTEUR ON NOMENCLATURE

One of the obituary notices of Prof Eugène Macé of the Faculty of Medicine of Nancy, who died recently at the age of 82, quotes a letter written by Pasteur to Macé on the occasion of the publication of Macé's book on bacteriology. "If you will allow me," wrote Pasteur, "I would express regret for your having adopted the word bacteriology Do you not find it too special? Is there not need for a term more general, more comprehensive, to describe the young science which grows so quickly, which opens and reveals so many new horizons? I must confess that I would much prefer the expression microbiology and, still more, microbie Would you not be satisfied with the title. Traité pratique de microbie! And then, the word is French And that is something If I had known of your undertaking early enough, I would have done all I could to dissua

OTTAWA CIVIC HOSPITAL

you from adopting the term bacteriology which is suitable rather for a chapter of microbie than for microbie itself in its entirety '

A R P

On Feb 4 the Third National Congress of Passive Defence was held in Paris under the auspices of several national organisations, including the National Union of Officers of the Reserve and the French Red Cross In the morning a film was shown entitled La protection contre les bombardements aériens In the afternoon the eight commissions of the congress sat in various lecture halls in the Sorbonne, and discussed such subjects as the protection of buildings, fire fighting organisation, police control and health and evacuation services Representatives of A R P organisations in Great Britain and Belgium presented reports on the measures being taken in their respective countries, a long account was given by General Niesel of A R P in Germany, and General Pétain addressed the meeting on national defence

IRELAND

(FROM OUR OWN CORRESPONDENT)

RETIREMENT AT SIXTY FIVE

THE Minister for Local Government and Public Health was recently asked if it were still his intention that pensionable officers employed by local authorities should resign their positions at the age of sixty five, and, if so, whether he would state the action already taken or in contemplation to secure compliance in the matter The Minister replied to the first part of the question in the affirmative The matter, he added, had been brought to the attention of local bodies some time ago It would be embodied in legislation when a suitable occasion should arise

As the Minister stated, a circular was issued some years ago by his department to local authorities advising them that employment of pensionable officers should cease at the age of sixty five, and some authorities, regarding the circular as mandatory, demanded the resignation of officers above that age Very few resigned, as it became clear that neither the local authorities nor the Minister had power to compel officers to resign merely on account of their age, unless such power was explicitly expressed in their terms of appointment It was admitted by the Minister that he had at the time no compulsory power in the matter If he should now or in the future take steps to obtain power by legislative means, the interests of existing medical officers as well as the conditions of future entrance to the local medical services will require grave consideration

DINNER OF THE ROYAL COLLEGE OF SURGEONS

The charter day dinner of the Royal College of Surgeons in Ireland was held last Saturday in the hall of the college, with Mr William Doolin, the president, in the chair Before the dinner Mr Henry Wade of Edinburgh was admitted an honorary fellow of the college, being introduced by Mr Henry Stokes, vice president of the Irish college Some 120 fellows of the college and their guests sat down to dinner, and a pleasant evening was spent Among those who spoke were Mr Henry Wade, Dr T G Moorhead, Dr T P C Kirkpatrick, and the President

UNITED STATES OF AMERICA

(FROM OUR OWN CORRESPONDENTS)

PROJECTED HEALTH LEGISLATION

ON Jan 30 the Hon Robert F Wagner, senator from the state of New York, made a radio speech which was broadcast over the nation wide network of the National Broadcasting Company After reviewing the evidence of the need for the extension of medical care Senator Wagner announced that he is now drafting legislation to make the "broad-gauged plan" of the President's interdepartmental committee "a national reality" "Under no circumstances," he said, "will the Federal Government go into the business of furnishing medical care, or interfere with the states in the licensing of medical or other practitioners State plans would be established only after consultation with the medical professions who would also be fully represented on advisory councils"

Meeting the criticism that 850,000,000 dollars is an excessive charge on the national treasury Senator Wagner assured his hearers that in the first year authorisation for grants in aid will not exceed 90,000,000 dollars Matching formulæ will take into account the special health needs and financial resources of the several states

The states will be free to establish compulsory health insurance if they choose to do so "The bill will not impose a Federal strait jacket upon the development of state plans" The senator recognised that millions of consumers of medical services want compulsory health insurance but that the medical profession is divided as to the wisdom of compulsory features He himself considers that insurance for medical care is entirely compatible with American concepts " in the history of our own country there are ample precedents for health insurance itself The very first step taken by the Federal Government in the field of health was to create in effect a compulsory health insurance system for seamen in the American merchant marine" He quoted at length British experience with national health insurance and concluded his speech with a reference to the recommendations made ten months ago by the British Medical Association

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" it is well known from numerous examples how a more or less intimate contact between different human societies can lead to a gradual fusion of traditions, giving birth to a quite new culture The importance in this respect of the mixing of populations through emigration or conquest for the advancement of human civilisation need hardly be recalled. It is, indeed, perhaps the greatest prospect of humanistic studies, to contribute through an increasing knowledge of the history of cultural development to that gradual removal of prejudices which is the common aim of all science —Prof NIELS BOHR, For Mem R S, *Nature, Lond* Feb 18, 1939, p 271

" Of course I may be wrong I am open to conviction, but one thing I do urge Before another set of Regulations as to training and qualifications of health officers comes and before a single other misguided person like myself gets up and talks about it, let those concerned put their heads together and decide what type of person they *do* want for health visiting, the educationist or the nurse then, and then only, may it be possible to standardise a rational training for health visitors '—J GREENWOOD WILSON at a meeting of the Society of Medical Officers of Health, Feb 17

LETTERS TO THE EDITOR

"THE NEW OUTLOOK IN PNEUMONIA"

SIR,—The leading article under this heading in your issue of Feb 11 has somewhat astonished me While there can be no doubt that the introduction of sulphapyridine is a great contribution to the treatment of pneumonia, it is my opinion that it is still too early to describe it as a specific remedy.

The value of the large body of work on pneumococcus pneumonia performed in the United States of America lies not only in the proving of the efficacy of serum treatment. The American workers have themselves introduced a "new outlook on pneumonia" which, so far as I am aware, has not yet been taken fully into account in assessing the value of this new drug Before any reasoned statement, in fact before even a general impression, can be made regarding the efficacy of M. & B 693, a very large number of cases will require to be reported in which, before the onset of therapy, the infecting pneumococcus has been typed and blood-culture has been performed. These two factors alone introduce sufficient errors in any investigation of pneumonia to prevent an opinion being formed from the observation of untyped cases

I can see nothing but harm resulting from such a premature leading article and it seems to give small encouragement to those who are taking a more painstaking way of investigating the value of the drug. I am, Sir, yours faithfully,

THOMAS ANDERSON.

Ruchill Fever Hospital, Glasgow, Feb. 14.

ANEURYSM OF POPLITEAL ARTERY

SIR,—I was much interested in Mr Cecil Flemming's paper in your issue of Feb. 11 (p. 322) A recent case of my own appears to support his conclusion that ligature should be combined with excision or some form of plastic operation

A man, aged 73, a fishmonger, came under my care in August, 1938, complaining of a swelling in the posterior aspect of the left knee, which he had first noticed ten months previously owing to the aching pain associated with it The pain was noticed *especially on walking or long standing and occasionally* was felt down the back of the leg. The swelling had increased steadily in size until a fortnight ago, when it suddenly became twice as large. During the last week it had become more painful. He had had varicose veins in the left leg for many years, and an operation for hydrocele in 1924. There was no history of venereal disease; he had 5 children alive and well, and his wife had no miscarriages.

A swelling with expansile pulsation was present in the left popliteal fossa with a well-marked systolic bruit. The left dorsalis pedis pulse was weaker and later than the right Pupils normal. Mouth · leucoplakia inside angles of mouth and beneath right side of tongue. Lungs. emphysema Heart: sounds weak, no murmurs Radiography showed slight enlargement chiefly of the left ventricle and also aortic dilatation. Electrocardiogram: auricular fibrillation at a rate a little above the normal (Dr. K Shirley Smith) Blood-pressure: systolic 144, diastolic 100. Urine normal The blood Wassermann reaction was strongly positive (1/120 dilution of patient's serum fixing standard amount of complement). A radiogram showed gross atheroma of the femoral artery in the popliteal space; there was no bone erosion (Dr. S. Cochrane Shanks)

Operation was done on Aug. 31, 1938, under gas, oxygen and ether A tourniquet was applied and a long vertical incision made over the popliteal fossa. It was not possible to separate the popliteal artery and vein and a strong silk ligature was placed aroun *both just proximal to the sac.* The lower end of th sac was then exposed and the vessels were agai ligatured with silk. The tourniquet which had bee in position for about 40 minutes was removed. Th aneurysmal sac was then incised and a very larg clot removed. It was noted that there was almos *no bleeding from collateral vessels* into the sac an no ligatures or sutures were necessary The sa was gently cleared of loose and slightly adheren clot and irrigated with flavine It was then dissected away from the surrounding tissues to which i was not greatly adherent. A corrugated rubbe *drain was inserted through each* extremity of th wound into the popliteal space. At the end of th operation the foot was warm and a good colou and no anxiety was at any time felt as to the viabilit of the limb He was last seen on Jan. 20, 1939 when he complained of a slight aching and "tightness" *in the left foot.*

On microscopical examination (Dr H. W. C Vines) the clot showed all stages of organisatio including at the periphery hyalinisation and earl calcification The arterial wall was almost entirel hyalinised, the vasa vasorum showed perivascular *cuffing, and there was inflammatory fibrosis of media.* These findings were considered consistent with syphilis.

Mr. Flemming states that "the femoral artery was ligatured immediately proximal to the sac" but he does not mention whether the femoral vein was also ligatured It is pointed out in Carson's "Modern Operative Surgery" (1934) that Makins in his Bradshaw lecture for 1913 (*Lancet*, 1913, 2, 1743) concluded that when it became necessary to ligature a main arterial trunk its accompanying vein should also be tied I am, Sir, yours faithfully,

Harley Street, W 1, Feb 20. CAMERON MACLEOD

USE AND ABUSE OF PURGATIVES

SIR,—In your account of the meeting of the Medical Society of London in your last issue I am reported to have said that Sir Arthur Hurst had been responsible for the sale of paraffin in half gallon bottles Your excellent reporter, at a somewhat late hour in the evening, evidently did not *catch the whole of my remark*, in which I said that I believed that a late colleague of Sir Arthur Hurst had been responsible for the habit of buying paraffin in half-gallon bottles It would be obviously uneconomic for a patient to purchase such large quantities if he limited himself to the small doses that Sir Arthur Hurst prescribes—one to two teaspoonfuls. I am, Sir, yours faithfully,

Cavendish Square, W.1, Feb. 20. J. E. H. ROBERTS

PREGNANCY TESTS AND NOTIFICATION

SIR,—Dr. Joan Malleson's suggestions for reducing the incidence of criminal abortion, published in your issue of Feb 11, are admirably detailed and sympathetic. May I, as a laywoman, make one comment? It occurs to me that the service of Aschheim Zondek *tests would need to include careful arrangements for* anonymity, so as to ensure that positive reports could not be used for purposes of notification Might not some system of complete privacy be devised, such as is embodied in our excellent service of venereal diseases prophylaxis and treatment? Women who come for help ought to be quite sure that the help does not conceal a trap.

I am, Sir, yours faithfully,

Chelsea, S W 3, Feb 20. F W. STELLA BROWNE.

SEPTICÆMIA OR BACTERÆMIA?

SIR,—Mr Fairbank's letter in your last issue usefully reminds us that there are differences to be observed in employing the terms septicæmia and (as you print it) bacteræmia, but I wonder why "bacteræmia" should be considered an improvement on the original "bacteriæmia," in which form the word is still generally used. It is only of recent years, I think, that some medical printers have imposed this shortened form upon us. Why does this particular "i" offend so much that it is to be plucked out?

I am, Sir, yours faithfully,

REGINALD MILLER

Upper Wimpole Street, W 1, Feb 18

. Mr Fairbank wrote bacteriæmia with an "i," and the word was printed bacteræmia because that happens to be THE LANCET style. Dictionaries are about fifty-fifty on the subject, and if the shorter form is etymologically admissible there is something to be said for it on grounds of euphony. Moreover in the many words compounded with æmia there is a tendency to simplify the prefix—e g, sulphæmia, oxæmia.—ED L

FIBROCYSTIC DISEASE OF BONE

SIR,—In their extremely interesting article on fibrocystic disease of bone with skin pigmentation and endocrine dysfunction in your last issue, Drs Robson and Todd state that precocious puberty in females suffering from this disorder develops "at the time when bone softening first gives rise to symptoms." Yet I have under my care a girl aged 2½ years with typical extensive pigmentation and diffuse cystic bone changes which are so far advanced that in the last six months, as the result of slight trauma, she has fractured both femora and one humerus, but who, as yet, does not show any signs of precocious puberty. They also agree with some other writers that possibly "the male cases should be regarded as distinct from the female in that precocious puberty does not occur," but the bone changes and pigmentation are so exactly alike in the two sexes as to leave no reasonable doubt of their identity.

The real purpose of this letter is, however, to draw attention to the fact that, with the possible exception of Hirsch, my colleague Dr Frances Braid was the first to describe the disease in males, in an article in the *Archives of Disease of Childhood* (vol 7, p 313), entitled Osseous Dystrophy following Icterus Gravis Neonatorum—a paper which everyone who has written on this subject appears completely to have ignored. Her patient has been under continual observation from his birth ten years ago until the present time, and together with my patient formed the subject of a communication by Dr Braid to the autumn meeting of the British Orthopædic Association, which will be published shortly. Both these children suffered from icterus gravis neonatorum; indeed, Dr Braid regards the bone changes as a sequel of that condition and in support of this thesis gives details in her paper of the development of bone changes in puppies after ligation of the common bile duct.

The suggestion that icterus gravis has an ætiological connexion with this syndrome of bone changes and pigmentation demands careful consideration, because, although some of the case histories fail to mention the occurrence or otherwise of jaundice at birth in two instances this event is stressed. For instance, in the case described by McCune and Bruch the jaundice was so intense and lasting as to lead to a diagnosis of congenital obliteration of the bile ducts, and in one of the two instances recorded by Summerfeldt and Brown in the current issue of the *American Journal of Children's Diseases* "there was a history of jaundice at birth which lasted four months." Considering the rarity of the incidence of icterus gravis and its high mortality the association of severe neonatal jaundice and bone changes in such a considerable proportion of the cases reported (4 in 19) cannot be dismissed lightly as a chance occurrence, especially since the significance or even the incidence of jaundice in infancy may quite easily be overlooked by many clinicians and parents. An example of such an omission may be found in the paper by Albright and his colleagues, who in giving a résumé of the case described by McCune and Bruch, to which reference has already been made, do not mention the occurrence of severe neonatal jaundice. On the other hand I have seen an adult male with this syndrome concerning whom, after careful inquiry, it was quite impossible to get a history of jaundice. It would be interesting to know whether the patient of Drs Robson and Todd suffered from neonatal jaundice.

Finally, it is doubtful if the authors of the paper are correct in including in their list of recorded cases that described by Snapper and Parisel, for biopsy of the affected bones showed that the condition was a xanthomatosis. Biopsy of bone has been performed in Dr Braid's case and did not reveal any evidence of xanthomatosis.

I am, Sir, yours faithfully,

Birmingham, Feb. 21 LEONARD G PARSONS

AUTOSERUM THERAPY FOR DRUG ADDICTION

SIR,—I can confirm from my own experience A B C's opinion of the efficacy of this treatment. Mine was a case of five years' addiction to morphia and I had tried three so called cures, without success but with much discomfort, before deciding to try autoserum therapy, having learned of this method of treatment from your columns. Despite the favourable reports mentioned therein, I started the treatment with feelings of doubt and misgiving. Imagine therefore my pleasure and surprise when I experienced only trifling withdrawal symptoms and was able within ten days to do without morphia altogether. Profuse perspirations, nausea, sneezing and nervous irritability were all negligible when compared with my experience of them during other methods of treatment; moreover insomnia was not prolonged and was relieved by Dionin. The physical weakness which A B C described in his case was also experienced by me and I am of opinion that at least three weeks' convalescence is necessary after a course of treatment before resuming active work.

It would be of interest to know the scientific reason for the effect of autoserum therapy, particularly with regard to drugs; also whether auto*hæmo*therapy has been tried in the treatment of drug addiction, and if so with what results.

I sign myself,

Feb 16 X Y Z

LIVERPOOL PSYCHIATRIC CLINIC.—Dr Otto Isakower, formerly vice-director of the psycho-analytic clinic at Vienna, will give three lectures at the clinic on March 15, 22 and 29, at 5 P.M. He will speak on Freud's conceptions of psychopathology. Further information may be had from the organising secretary of the clinic, 1, Abercromby Square, Liverpool 7.

OBITUARY

CONRAD FITZGERALD

M R.C S , L S.A

ON Feb. 2 Dr. Fitzgerald died at Fortune Bay, Newfoundland, at the age of 92. Judge Prose, one of Newfoundland's historians, described him as "an extraordinary—a most extraordinary man." His grandson wrote that it was "owing to the tremendous attraction the sea had for him, his love of Nature in all her moods, his bent towards natural history and his thirst for hard work (that) he eventually chose Newfoundland as the country which of all countries suited him best." He was well known throughout Newfoundland as a great doctor and experienced navigator He used to visit his patients in his ship, the *Albatross*, which he sailed single-handed at the risk of his life, beating up and down the treacherous and rocky south coast His skill in bringing his ship to safe anchorage in some friendly harbour through raging gales and mountainous seas on a lee shore was uncanny. His prodigious strength and hardihood was shown too in his winter battles on snow-shoes through blizzards and snowstorms to reach his patients in most isolated spots His experiences published for circulation among his friends a few years ago illustrate the enormous difference between medical practice in Newfoundland and in Britain.

Conrad Fitzgerald was born at Marlborough, where his father practised for many years After a short time attending schools at Epsom and at Bath he went to a boarding-school at Stapleton, near Bristol, where one of his fellow pupils was W G. Grace At the age of sixteen he was apprenticed to Dr. Lawrence of Bath with whom he worked for three years Then in 1866 he entered the Bristol medical school, doing his hospital work at the Bristol Royal Infirmary Here he fell in again with W G. Grace Fitzgerald won several prizes and a gold medal at Bristol and qualified in April, 1870. Very soon an opportunity offered itself for him to sail as surgeon on board the *Anglesey*, a full-rigged ship running between London and Melbourne

After some three years as ship's surgeon Fitzgerald accepted an invitation from a London firm to go to Newfoundland as doctor to their traders The practice was to include the whole of Fortune Bay, and he settled at Harbour Breton. After a trial period of three years Fitzgerald decided to spend five more years in the country, but the five stretched out to over sixty—from 1873 until his death. For forty years he had sailed his first schooner *Albatross* in all sorts of weathers, fair and foul, until her name was a household word in Fortune Bay Dr Fitzgerald's single-handed exploits became known throughout Newfoundland, and he was rated as good a sailor as he was a surgeon. The log of the first *Albatross* opened in June, 1876; the ship was run down and sunk by a steamer in July, 1916 He ordered a second *Albatross* and continued to sail her as before single-handed It was not until 1928, when he was over 80, that a serious septic infection of the hands incapacitated him from his nautical career Yet his professional life was not ended His grandson, in his record of Fitzgerald's life, says "At eighty-six he contents himself with professional work in his immediate neighbourhood."

In a lifetime spent sailing a seven-ton yacht around the tempestuous coast of Newfoundland Fitzgerald proved himself to be a rare instance of a man achieving mastery of two very different callings—medicine and the sea He died as he had lived, far-famed and greatly loved.

GEORGE JOHN JENKINS

O.B.E., M.B. EDIN., F.R.C.S.

Mr George Jenkins, the aural surgeon, who di on Feb. 15 at the age of 65, was educated at Melbourn and at Edinburgh University, taking his M B in 1895 In 1900 he came to London as senior demonstrator of anatomy at King's College, in succession to A. W. Cadman, and in 1902 he obtained his F.R C.S At this time he was intending to become a general surgeon, but Arthur Cheatle persuaded him to turn his attention to aural surgery. This he did with great success, and he was first appointed aural surgeon to the German Hospital and in 1910 assistant aural surgeon to King's College Hospital. In 191 he was secretary of the International Medical Cong held in London, and later he was president of t otological section of the Royal Society of Medicin In 1917 he became full surgeon at King's, and whe Arthur Cheatle retired in 1928 Jenkins succeeded him as director of the ear, nose and throat department and lecturer on otology in the medical school While at King's he took a great interest in the rugby football and boxing clubs, being a useful boxe himself

As a teacher of anatomy and aural surgery Jenkins was unsurpassed, for he took unlimited pains wit his lectures and a personal interest in each of hi students He was imbued with a vast amount o energy in all his work, and often after a heavy day he would go to King's late in the evening and operate until the early hours of the morning In 193 ill health compelled him to give up his appointment at King's, though he was still able to carry on his private practice and his work for the London County Council In the last few years he acquired a farm on the River Annan near Lockerbie in Dumfries, and there spent much of his time in fishing and breeding pedigree cattle, the latter with such success that on one occasion he won the championship at the Highland Society's annual show.

"The death of G. J. Jenkins," writes L "terminates a friendship of more than thirty yea duration, dating from the time when he came fro Edinburgh to teach anatomy at King's Colleg In this comparatively humble appointment he showe such enthusiasm for his work that he proved an invaluable assistant to Prof Arthur Robinson and later to Prof Peter Thompson, and it was this com bination of energy and ability which was to carry him to distinction as a specialist Turning to clinic work he obtained a surgical appointment at th German Hospital, where he was able to give hi anatomy students their first introduction to clinica surgery. His anatomical capacity attracted th attention of Arthur Cheatle, who was then engaged on his studies of the surgical anatomy of the tempora bone, and he became Cheatle's colleague whe Urban Pritchard retired From this time he we ahead steadily and gained a large practice, in sp of his rather casual attitude to social matters Hi contributions to otology were many, and he wa especially interested in meningitis as a complicatio of middle-ear disease In this his work laid th foundation of the improved prognosis of recent yea This particular study entailed much emergen work, and he was accustomed to many night ca id long hours, which must have put a heavy strain i his impaired health His passing means the loss a loyal friend and colleague and a man of scientific istinction ”

WILLIAM JOSEPH McCARDIE

M B CAMB

THE medical profession in Birmingham has lost a otable figure by the death on Feb 14 of William oseph McCardie The eldest son of Joseph William IcCardie, who died when McCardie was seven years ld, he was born at Edgbaston in 1865, and except r three years at Caius College, Cambridge, lived ie whole of his life in Birmingham His school days ere spent at King Edward s School, and he received is medical training at Queen s College and at the irmingham hospitals In 1897, largely on the advice Sir Gilbert Barling, McCardie secured appointment s visiting anæsthetist to the General Hospital ubsequently he became anæsthetist to the Ear and hroat Hospital, the Dental Hospital and other ospitals in the neighbourhood

McCardie was well fitted by temperament for anæsthetic work “The most kind and conscientious of ıen,” writes H W F, “he was always trying to main ain a high standard, he was uniformly reliable, ready help at any time, and possessed a manner which made im greatly liked by a wide circle of friends, colleagues nd patients His enthusiasm for his profession was shining example to younger workers in many walks f life, and not only was he the first anæsthetist utside London to devote the whole of his professional fe to this specialty but in this country he attained a re eminent position He was often asked for before he surgeon had been selected, and his blend of cheerful onfidence with quiet dignity did much to reassure ultitudes of patients The quaint stories and musing limericks with which McCardie seasoned is potions will long be remembered by those who ame under his hands, and particularly by the young, r he was specially happy with children

“For more than thirty years McCardie was indefatigable in his attendance at anæsthetic meetings in all arts of the country, and he was president of the ection of anæsthetics of the Royal Society of Medicine hortly after its formation His case records were ıost carefully kept, and the accounts of unusual or ıstructive occurrences which came from his pen ere clear and well chosen New methods and drugs eceived his unbiased attention, and his knowledge f the literature of anæsthetics was particularly xtensive Until recently he was careful to file either cutting or an extract of every notable article on an ınæsthetic subject

“He was fond of company and was a generous and lelightful host At games he was keen on golf and ennis He won many prizes for golf, including the Jlster Cup of the B M A on two occasions, and he ossessed his county colours at tennis His genial nd kindly manner covered a truly British spirit Ie was a conservative who supported the best of our nstitutions of sport and of daily life, concrete and bstract, with unflagging devotion, and his loyalty o friends and colleagues stands as an abiding memory A few years ago he sustained great sorrow which lrove him to seek respite in his beloved work, but otwithstanding the anxious care of his wife and is colleagues his health failed He retired to Narwick at the end of last year but alas the nalady could not be arrested To Mrs McCardie, is two sons and his daughter we offer our sincere ympathy ”

JAMES PLAYFAIR M'MURRICH

PH D JOHNS HOPKINS, F R S CANADA

Prof M'Murrich, who occupied the chair of anatomy at Toronto University until eight years ago, died on Feb 9 at the age of 79 He was born in Toronto in 1859, the son of the Hon John M'Murrich, and was educated at Upper Canada College and Toronto University, graduating B.A in 1879 In 1885 he took his Ph D at Johns Hopkins and in the following year was appointed professor of biology at Haverford College, Pennsylvania Thereafter he was successively assistant professor of animal morphology at Clark University, professor of biology at the University of Cincinnati, and professor of anatomy at the University of Michigan In 1902 he published the first edition of his book “The Development of the Human Body” and in the following year he edited Sobotta's “Atlas of Human Anatomy” and the fourth edition of Morris's “Human Anatomy” He had a clear and straightforward style, very valuable in textbooks for students, and the same gift of simplification made him an excellent teacher In 1907 he was appointed to the chair of anatomy at Toronto, a post he held until his retirement from active work in 1930 In 1922 he became dean of the School of Graduate Studies, and in the same year was president of the Royal Society of Canada and of the American Association for the Advancement of Science M'Murrich wrote extensively on comparative anatomy and embryology in the scientific journals, and in 1930 published a study of Leonardo da Vinci which threw new light on his achievements as an anatomist

In 1882 Prof M'Murrich married Katie Moodie Vickers of Toronto, who survives him with one daughter and one son

GRAHAM SCALES SIMPSON

F R C S, L D S

THE news of the sudden death of Graham Simpson on Feb 19 from coronary occlusion has come as a painful shock to his many friends Only a few months ago he returned to work after a long and serious illness, from which he had made a complete recovery, and even on the day of his death he had been seeing patients and operating as usual

A native of Brighton his original intention was to be a dental surgeon, and for that purpose he entered the dental school at Guy's Hospital and qualified L D S General surgery attracted him so greatly however that he transferred to the medical school there and rapidly rose to the position of surgical registrar and took his F R C S From Guy's he went to the Sheffield Royal Hospital in 1903 as senior resident surgical officer Three years later he was appointed to the honorary surgical staff and began his career as a consulting surgeon in Sheffield He soon acquired a leading position in the city and surrounding districts, not only as an able operator but as one whose surgical opinion and judgment were exceptional Whilst in no senses a specialist, his interest had for many years been chiefly in the surgery of the genito urinary system, of which he had made a special study and upon which he was a recognised authority For many years he was actively engaged as a clinical lecturer in anatomy and surgery, and for a few years before his retirement from the hospital at 60 he had held the chair of surgery in the university As a teacher he was extremely popular and most effective He had been external examiner in surgery at the Universities of Bristol and Birmingham, and at the time of his death held a similar post at Liverpool Perhaps his greatest pride was his election to the council of the Royal College of Surgeons some years ago He was actually the first Sheffield surgeon to hold such a post, and the honour of his recent appointment as Bradshaw lecturer had been a source of great delight to him

A deft and clever operator, he had that most valuable asset for every surgeon—an equable and indeed an imperturbable temperament This equanimity of mind, writes a colleague, stood him in good stead also during the last few years of his life when he was successively laid up for many months, first with severe accidental burns of the hands and forearms which not only gave rise to great suffering but seriously threatened his future work as an operator, and again only last year with serious lung trouble which involved a major operation. Both these were faced with a calmness and patience which no doubt played a large part in his complete recovery. Simpson touched life at many points and thoroughly enjoyed them all He was essentially a good mixer, happy in the society of old or young. He was widely read in the best literature, both French and English, and his literary taste was exceedingly good His contributions to medical literature were comparatively few but were always sound and well written A brave, manly heart, he was a trusted and trustworthy friend and a loyal colleague, whose work and example during the last thirty years in Sheffield has been of sterling value to numbers of his patients and students and a source of genuine delight to his personal friends

He leaves a widow and two children, a son and a daughter

EWING MOULD GLYNN WHITTLE

M D CAMB AND DUBL , M R.C P.

Dr Glynn Whittle, who died at his home in Liverpool on Jan. 18, was an authority on medical jurisprudence and obstetrics He was the son of Dr Ewing Whittle, who was lecturer in forensic medicine at Liverpool, and went to the Royal Institution School. At Cambridge he obtained first-class honours in the English and the mathematical tripos He did his clinical work at St Bartholomew's Hospital and at Trinity College, Dublin, and was placed first in the M D. Dublin in 1877 In 1880 he took his M.R.C.P. and his M D. Camb He followed up these academic successes by studying at Oxford and Paris and visiting a number of continental hospitals On his return to Liverpool he became physician to the Liverpool Lying-In Hospital and lecturer on midwifery there He was also medical officer to the post office and medical examiner to the Board of Education, and up to his retirement a few years ago he was medical referee to the Liverpool magistrates He had been a vice-president of the North of England Obstetric Society and president of the Liverpool Philomathic Society In his young days Glynn Whittle took a keen interest in athletics and in later years he gained distinction as an archer.

Dr Glynn Whittle leaves a widow, one son and one daughter.

WILLIAM McLORINAN

L R C P I.

Dr McLorinan, senior physician to the Mater Infirmorum Hospital, Belfast, and for many years clinical lecturer and examiner in medicine at the Queen's University, died at Belfast on Feb. 7

Born in Belfast and educated at St Malachy's College, Belfast, and the Catholic University, Dublin, McLorinan qualified in 1899, obtaining the university gold medal for surgery and the silver medal for medicine He practised for a time in Belfast, but in 1901 he forsook the town for the country and went into general practice at Castendall in the glens of Antrim. After some years as a country practitioner he returned to Belfast and was soon afterwards appointed visiting physician to the Mater Infirmorum There his natural kindliness and cheerfulness of outlook endeared him to students and patients alike and he was an immediate success as a teacher and clinician. He possessed a ready wit that made the dullest subject acceptable, and was a born raconteur. As an examiner he was sympathetic and considerate, and even the most nervous candidate did not fear him He was an active member of the Ulster medical society and was a justice of the peace for Belfast Apart from his work McLorinan's main interests were golf and bridge He was a well-known figure at the Newcastle Golf Club and was usually to be seen at the principal Irish race meetings His exuberant vitality made it all the harder for him to curtail his activities when it became clear that he was suffering from angina, and for some time he had courageously carried on his work under the ever-present menace of attacks. The death of his friend Sir Robert Johnstone last October was a severe blow to him "His death," writes a colleague, "is a great loss to the Mater Infirmorum Hospital. He was a man who was loved by all who knew him"

DR. AUGUSTE WIDMER

ON Feb 13 Dr. Auguste Widmer, founder and proprietor of the clinic Val Mont, near Territet, died in Lausanne in his 86th year. Dr Widmer was born in Lausanne in 1853 , his family came from the canton Aargau but had settled in Geneva After studying at Basle, Leipzig and Kiel he began a general practice in a Vaudois village, later moving to Lausanne where he soon became very popular, chiefly amongst the many foreigners residing on the shore of Lac Léman. In 1884 he founded the Clinique La Metairie near Nyon In 1898 he transferred his activities to the Clinique La Colline, near Territet, an institution specially designed for digestive and nervous diseases, where he worked with his life-long friend Dr. Turin His success here encouraged him to found in 1904 the Val Mont, to which patients flocked from all over the world, many members from royal families (especially Belgian) coming under his care His work was of high scientific standard, proof of which was the very complete medical library at the clinic which was often consulted by members of the faculty of Lausanne. Dr. Widmer had a fine collection of artistic treasures which in 1936 he presented to the fine arts gallery in Lausanne where a *salle Widmer* is under construction

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THE LATE PROF OKELL.—In last week's obituary notice the date of Prof. Okell's appointment to the chair at University College Hospital should have been given as 1930. His observations on bacteræmia following extraction of septic teeth (which were published in our columns and have since been frequently quoted) were made in collaboration with Dr. S. D. Elliott, now of Cambridge

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" . No institution has been so degraded and vulgarized as marriage ; it would almost seem as though all the artifices known to a sensational Press and to a commercialized literature have been employed to emphasize every aspect of marriage except the duties of self-discipline which it offers. It is as certain as anything can be that, where families are voluntary, a community in which marriage is regarded as it is to-day in western civilization will die out."—Prof A M CARR-SAUNDERS, quoted in the *Times*, Feb 20, 1939, p 14.

PARLIAMENTARY INTELLIGENCE

AIR-RAID SHELTERS

ON Feb 10 the House of Lords discussed the Government's policy in regard to the provision of bomb proof shelters Lord TEYNHAM said that the short term policy of steel shelters now being carried out by Sir John Anderson was no doubt the quickest form of limited protection that could be organised in an emergency, but they must be careful not to underestimate its limitations The steel shelters were bound to deteriorate from want of care and attention He would like to see a long-term policy going hand-in-hand with the short-term one Concrete pill boxes might be erected in the suburban areas and the poorer two story districts These could be made permanent, and would give full protection against blast and splinter to many groups of families But neither steel shelters nor concrete pill boxes could be used in the congested areas of great cities, and it was unwise to delay the planning of deep shelters merely because emergency plans were now being considered There might be a sudden overwhelming demand for the construction of deep shelters at a time when it would be difficult and dangerous to construct them A survey should also be made of every large building and a notice placed on it indicating whether it would be safe to use as a shelter or not The necessary deep bomb proof shelters could be constructed within 3–5 months, according to the nature of the subsoil Each unit should be self-contained, and should include a complete air-conditioning system, efficient drainage to prevent flooding, with means of preventing gas from entering the drains, and auxiliary electric-light and power plant —Lord STRABOLGI warned the Government not to go to the other extreme once more and ignore the poison-gas peril The Government had begun by concentrating on anti gas devices, and now all the concentration was on anti-blast shelters He believed there was still a great danger from poison gas attacks He hoped that the Government were not going to extremes with the policy of evacuation If an enemy could persuade enough people to evacuate the towns and cities of this country he had won the war The thing to do was to provide sufficient shelter, and only to evacuate the people who had no vital duties to perform

Lord HORDER said he was one of those who believed that in the possible event of war no really adequate security, physical or moral, could be afforded to those who continued their work in a dangerous area, except by some form of bomb proof shelter He had a special reason for rising to speak, because there would be one body who must inevitably work in a danger zone—namely, the doctors An intensive air raid must paralyse for a time all activity even on the part of medical men and women at a first aid station In some quarters there was a belief that as many casualties as possible should be removed forthwith from the danger centre to the less dangerous parts of the city, the periphery But owing to the congestion of thoroughfares and the blocking of streets by debris a large number of casualties would have to be treated where they arose, and the doctors must be there to treat them That was the whole meaning of a first-aid station or hospital He therefore entered a special plea that the first aid stations must be in some bomb proof place, and he could think of no place adequate for this purpose except a fairly deep underground shelter In the treatment of air raid casualties the same principle held as in the treatment of any disease or any disability, prevention was better than cure Therefore Lord Teynham's arguments in favour of deep shelters for the protection of the citizen against casualties must necessarily interest the medical profession The question of money could not reasonably enter into this matter At the present moment 95 per cent of medical men and women in this country were already enrolled by the British Medical Association The register was now being taken over by the Minister of Health, who would earmark from that register doctors for special purposes The number of these experts available was limited The first air-raids must necessarily count among their casualties a large number of doctors He was not speaking on their behalf, he was speaking economically These doctors were valuable citizens, more valuable prospectively in the event of war than they were today The replacements were limited Quite apart from that their work would only be possible if carried on underground Not only the doctors but also their valuable equipment, which it would be difficult to replace in an emergency, must be in a place of adequate shelter Moreover, the morale of the patient was an important asset in obtaining a successful result from treatment Therefore the question of money seemed to be incongruous in relation to the particular plea he was entering He urged that medical men earmarked for first-aid duties, their patients, the casualties, and their indispendable equipment should at least be freed from any further discussion of short- or long-term policy, above ground and below ground He hoped that the Minister of Health would quite shortly say to his colleagues in the Government "Be the policy long or short, I must have my doctors and their work underground in the danger areas, and therefore let me begin forthwith to prepare for this necessity"

The Earl of BIRKENHEAD, replying for the Government, said that in their view any complete policy of shelter against attack by high explosive bombs must be three-fold It must include protection for people in their homes, protection for people at their places of work, and protection for people who were caught in the streets The question of underground dressing-stations, raised by Lord Horder, was being considered by the Minister of Health None of the Great Powers on the Continent had gone in for deep shelters for their populations on a large scale The problem was far more complex than was generally supposed, and it had been under close and continuous study by the A R P department People must remain as far as possible on their jobs in time of war, and a deep-shelter policy would raise difficulties in keeping people at their work These shelters would have to be large, and if they turned out not to be really bomb proof, because of the progress of aeronautical science or improvements in weapons, they might become death-traps on a gigantic scale

NOTES ON CURRENT TOPICS

Unemployment and Malnutrition

In the House of Commons on Feb 16 Mr ARTHUR GREENWOOD, in moving a vote of censure on the Government for its failure to find a solution of the unemployment problem, asked the Government to answer two specific questions first, did they intend to take any further steps to ameliorate the lot of the unemployed, and, secondly had they any considered plans to provide socially useful work for these people? We were getting to a position now where we should always have a standing army of 2,000 000 unemployed Mr Greenwood quoted a recent book entitled "Men Without Work," which he said was a report by outstanding economists and social students made to the Pilgrim Trust, as saying that in most unemployed families the parents and in particular the wives, bore the burden of want, and in many instances were literally starving themselves in order to feed and clothe the children reasonably well He also referred to an investigation by Dr J L Halliday of Glasgow, who examined a group of 1000 insured sick people and found that in about a third of the cases the reason for the incapacity was not organic but psycho neurotic —Mr ERNEST BROWN Minister of Labour, said that it was not correct to say that we had a standing army of 2,000 000 unemployed, or anything like that figure. The last official table showed that of the total of 2,039,000 unemployed 289,000, or 15 per cent had been without work for a year or more; 1,436,000, or 77 per cent. for less than six months; 1,187,000, or 63 per cent for less than three months; and 906,000, or 48 per cent. for less than six weeks. The matter resolved itself into two problems: whether or not they could supply, in the absence of a revival of trade, a chance for the unemployed in their own area with new industries; and whether they could provide untrained men with skill to enable them to seize the chance of work when it came along.

QUESTION TIME

WEDNESDAY, FEB 15

Colonial Veterinary Service

Mr. Markham asked the Secretary of State for the Colonies whether he was aware of the disability under which the colonial veterinary service was suffering as the result of the continued lack of an adviser in animal health at the Colonial Office, and whether he could see his way to make such an appointment forthwith, in accordance with the recommendation of the Lovat Committee—Mr. Malcolm MacDonald replied: The question of reviving the appointment of adviser on animal health, which has been in abeyance since 1932, is at present under consideration If my hon friend will repeat his question in a fortnight's time I will be in a position to give him a definite reply.

Dependants of Insured Persons

Dr. Summerskill asked the Minister of Health whether he would indicate when he proposed to implement the promise, made by successive Ministers of Health, to include the dependants of insured workers under the National Health Insurance Acts—Mr Bernays, parliamentary secretary to the Ministry of Health, replied: I am not aware of any promise to the effect referred to by the hon Member having been given by any Minister of Health

THURSDAY, FEB 16

University Education in War-time

Mr George Griffiths asked the Parliamentary Secretary to the Board of Education what arrangements the Government had made for university education in the event of war—Mr Kenneth Lindsay replied. Representatives of the universities are, I understand, in consultation with my right hon friend, the Lord Privy Seal, with a view to preparing plans to enable university education to continue so far as may be appropriate in time of war, and for securing those special services to war-time needs which the universities may be able to render

Medical Expenses of Evacuated Children

Mr James Griffiths asked the Minister of Health whether those who accepted the care of children under the evacuation scheme would be responsible, under the schedule of payments, for any medical expenses which might be necessary in case of illness of the children.—Mr. Elliot replied: No, Sir.

Voluntary Hospitals and the L.C.C.

Mr David Adams asked the Minister of Health whether the conference *about to be held under his aegis*, between the London County Council and the voluntary hospitals of London, was to work on the basis of preparing recommendations applicable to hospital systems throughout the country, and what progress had been made in the carrying out of Lord Sankey's recommendation that the voluntary hospitals of the country should form themselves into an association, regionally organised, for the purposes of joint action—Mr Elliot replied: The conference which was held *recently between representatives of the King* Edward VII Hospital Fund, the Voluntary Hospitals Committee for the County of London, and the London County Council, was of an exploratory character and no decisions were taken It did not cover hospitals outside London A committee of the British Hospitals Association is now actively engaged in formulating a scheme of regional organisation which, I understand, is meeting with general approval According to my information the committee hope to issue a statement in about six months' time

County Hospitals and Maternity Cases

Dr Summerskill asked the Minister of Health whether he was aware that expectant mothers who desired to enter a county hospital were required to submit to th old poor-law procedure in those counties which had not appropriated the hospitals under the 1929 Local Government Act, and whether, as this was proving a deterrent to women who desired to enter a hospital for their confinement, he would take steps to get these county authorities to waive the regulations in these particular cases—Mr Elliot replied. It is the constant policy of my department to secure appropriation wherever possible, and if the hon Member has in mind any particular cases of difficulty such as are referred to in the latter part of her question I *shall be happy to look into them on being* furnished with details In general I should consider the waiving of the regulations as a less satisfactory solution than the appropriation of the hospital.

Diphtheria Immunisation

Mr. Leach asked the Minister of Health if his attention had been drawn to the case of 25 children attending the Irish College at Ring, Waterford, who contracted tuberculosis, *from which one had since died*, as the result of inoculation against diphtheria by a prophylactic suppl by the Wellcome Foundation, of Snow Hill Buildin London, if this prophylactic was the same as that fr used in this country, and what steps he was taking prevent a similar occurrence here—Mr Elliot replie The reply to the first and second parts of the questi is in the affirmative The outbreak in Ireland to place in November, 1936, and, as the hon Member w informed in reply to a question on June 24, 1937, care inquiry concerning the prophylactic used was made medical officers of my department as soon as the matt was brought to my notice.[1] As regards the last part, t *manufacture for sale in, and the importation into*, t

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[1] Question Time (June 24, 1937): *Diphtheria prophylactic* Mr Leach asked the Minister of Health whether he was aw that an Irish jury attributed a death from generalised tub culous infection following prophylactic inoculation agai diphtheria to the presence of tubercle germs in a bottle prophylactic supplied by the English firm of chemists w supplied most of the diphtheria prophylactic used by pub authorities in England and Wales, and whether he wou have a searching inquiry made into this matter in view of t *seriousness of the allegation made*—Mr Bernays, parliamenta secretary to the Ministry of Health, replied: I have seen press report to the effect stated in the first part of the questio As to the second part, careful inquiry concerning the proph lactic supplied by the firm referred to has already been ma by medical officers of my department and the result leads to t *conclusion that no tubercle bacilli* were present As the matt is somewhat technical I will send the hon Member furth particulars

The further particulars sent to Mr Leach later by the Minis of Health were as follow. (1) The matter was brought to t notice of the Deputy Medical Officer of the Ministry in Ap 1937, *by the Director of the Wellcome Research Laboratori* As it appeared that the substance used (Diphtheria Prophylac T A F) was manufactured under licence issued by the Mini of Health under the Therapeutic Substances Act, 1925 immedi steps were taken to conduct an investigation (2) The Medic Officer of the Ministry who specialises in questions relating therapeutic substances under the act of 1925 *made* a cl examination of the methods employed at the Burrou Wellcome laboratories in the manufacture of the prophylac used This satisfied him that all possible precautions a taken to prevent any mistake occurring in the processes, inclu ing the examination for sterility of samples of the batch bei manufactured at different stages of its preparation, and th the substitution of a live tubercular vaccine for the Diphthe Prophylactic (T A F), or the introduction of tubercle bac into the prophylactic, was not possible (3) Samples of t only batches (Nos 512 and 521) of the prophylactic from whi the doses used in this case could have been derived have be tested bacteriologically at the Ministry of Health patholog laboratory, and no tubercle bacilli or other organisms we found Moreover, tubercle bacilli experimentally introdu into samples of the two batches were quickly killed by th disinfectant present (4) The batches in question, Nos 51 and 521, consisted of no less than 5000 and 8000 doses respecti and have been almost completely used up in various parts of t British Isles without complaints from any other quarter o ill effects from their use (5) Messrs Burroughs Wellcome a Co have had an independent test made of samples of the t batches by Prof Bigger of the University of Dublin by wh also their laboratories have been inspected Prof Bigg conclusions confirm those of the Ministry's medical o (6) The above evidence points strongly to the conclusion t the cause of the fatality is not to be found in the prophylac supplied

DOCTORS' LIBRARY

untry of diphtheria prophylactic are strictly controlled der the Therapeutic Substances Act, 1925

Medical Inspection at Croydon Airport

Sir HENRY MORRIS JONES asked the Minister of Health hether there was a port medical officer at Croydon rport, and what system of inspection was in force ere for the prevention of the entry of cases of infectious seases in this country—Mr ELLIOT replied The duties medical officer at the Croydon Airport are carried it by members of the medical staff of the town council der the general control of the medical officer of health d the services of a medical officer are available for the rport at all times With regard to the second part of e question, the measures to be taken to prevent the troduction of infectious diseases are prescribed in the ublic Health (Aircraft) Regulations, 1938, the responsi ility for the administration of which rests with the town uncil

Sir H MORRIS-JONES Could not my right hon friend onsider appointing one or two whole time medical ficers specially for the airport ?—Mr ELLIOT I think at the local authority is carrying out its duties satis ctorily

Removal from Insanitary Premises

Mr GEORGE GRIFFITHS asked the Minister of Health hether any local authority had been given specific atutory power to remove any infirm or physically capacitated person who was suffering from a grave ronic disease, or who resided on premises which were nsuitable owing to neglect on the part of the occupier r owing to insanitary conditions—Mr ELLIOT replied ccording to my information the power to which the hon ember refers has been allowed by Parliament to some venty local authorities in private acts

MONDAY, FEB 20

Cheaper Milk for Mothers and Children

Sir ALFRED KNOX asked the Minister of Agriculture hether the Government proposed to introduce a scheme provide cheaper milk for mothers and young children—r REGINALD DORMAN SMITH replied As already nnounced the Government hope to bring forward a cheme, in coöperation with the industry, for a reduction n the price of liquid milk to local authorities for the urpose of their maternity and child welfare arrange ents Negotiations have taken place to this end with he Milk Marketing Board and representatives of the stributors, but I am not yet in a position to state when he proposed scheme will be introduced

Varying Risks of Industry

Mr GORDON MACDONALD asked the Home Secretary he percentage of persons to whom compensation was aid in consequence of accident, or industrial disease, in hipping, factories, docks, mines, and quarries during he latest year for which figures were available—Mr EOFFREY LLOYD replied The returns collected by the ome Office of workmen's compensation paid in these ndustries in 1937 show that the numbers of cases in which ompensation was paid bore the following percentages to he numbers employed shipping 5 93, factories 3 97, ocks 11 27, mines 23 23, quarries 10 45 The cases nclude cases continued from previous years

Medical Referees in Scotland

Mr ROBERT GIBSON asked the Home Secretary how nany medical referees in Scotland, under the Workmen's ompensation Act *had been dismissed from office or had* ot had their appointments renewed, respectively, during he last few years—Mr GEOFFREY LLOYD (under-secretary, ome Office) replied During the past five years four ppointments which have expired have not been renewed o referee has been dismissed

TUESDAY, FEB 21

Silicosis in South Wales

Mr JAMES GRIFFITHS asked the Secretary for Mines if is attention had been drawn to the continued increase n the incidence of silicosis in the South Wales coalfield as revealed by the fact that in 1938 out of 434 certificates of disablement by silicosis 382 were issued to miners in the South Wales coalfield, and if he could indicate what steps were being taken by His Majesty's inspectors in the Cardiff and Swansea divisions to prevent silicosis—Captain CROOKSHANK replied I am aware of the position in regard to silicosis in South Wales and it is a matter for grave concern Continuous efforts are being made to improve the conditions, notably as regards ventilation generally and the suppression of dust during drilling and after blasting in stone, and the mitigation of dust on the travelling roads A further recent development is the introduction in substantial numbers of the new Mark IV respirator sponsored by the Government

Mr MAINWARING asked the Secretary for Mines if he could provide a statement showing the average age, when certified, of miners suffering from silicosis, and the average duration before death ensued after certification for the *period 1925 to date—Captain CROOKSHANK replied* Particulars are available only since June 1, 1931 During the period from that date to Dec 31, 1938, the average age of coalminers when certified as disabled from silicosis was approximately 50 years Since June 1, 1931, disablement certificates have been issued in about 1850 cases, and of these cases about 220 have subsequently been certified as having died from silicosis As there are more than 1600 cases in which no certificate of death from silicosis has been issued, it is not possible to give any figure for the average period which elapses between the issue of the disablement and death certificates

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MEDICAL NEWS

University of Oxford

The hon degree of D Sc is to be conferred on Dr Pio del Rio Hortega, formerly director of the National Institute of Cancer and of the Laboratory of Normal and Pathological Histology in Madrid, and now a reader in neuropathology under the Nuffield scheme

University of Birmingham

Four William Withering lectures will be given by Dr Peyton Rous of the Rockefeller Institute for Medical Research, New York, on March 9, 16, 21, and 23 at 4 P.M. in the medical school of the Hospitals Centre He will speak on present aspects of the cancer problem On March 28 and April 4 at 4 P M, Dr James Smellie, physician to the Birmingham United Hospital and to the Children's Hospital, will deliver two Ingleby lectures on [illegible] diarrhoea All these lectures will be open to [illegible] of the medical profession and to students of [illegible]

University of Leeds

A lectureship in medical ethics and conditions of [illegible] practice has lately been instituted at the [illegible] a short course of lectures will be given to [illegible] their final year

The council have appointed Dr W. S. [illegible] the lectureship

Dr Macdonald graduated M B at the [illegible] in 1931 and obtained his D P H [illegible] Leeds where he is treasurer of the [illegible] man of the public medical service. [illegible] peace

University of Glasgow

The first of a short course of [illegible] of medical ophthalmology will be [illegible] at 4 30 P M by Prof A J B[illegible] the eye in disorders of the [illegible] Other lectures will be [illegible], Dr John Marshall and [illegible] The lectures will be held [illegible] Church Street Glasgow [illegible] profession are invited [illegible]

International Congress of [illegible] Medicine and Pharmacy

Representatives [illegible] International Congress of [illegible] which is to be [illegible] Information [illegible] secretary[illegible], Army Med[illegible] Washington, D C

King's College Hospital

The next meeting of the Listerian Society will be held at the hospital on Wednesday, March 1, at 8 15 P M, when Dr Halliday Sutherland will speak on the history of tuberculin.

Course in Psychological Medicine

The second part of the course of instruction for the D P M., which is being given at the Maudsley Hospital, will begin on Feb 27 Further information may be had from the hon. director of the medical school, The Maudsley Hospital, Denmark Hill, London, S E 5.

Hunterian Society

A gold medal is awarded annually by this society for the best essay written by a general practitioner The subject for 1939 is the treatment of obesity in general practice, and for 1940 the treatment of tonsillar infections in children The medal for 1938 was awarded to Dr J. E Outhwaite of Yeadon, Leeds, for his essay on the management of inoperable malignant disease in general practice. Any registered practitioner resident within the British Empire is eligible. A copy of the rules may be had from the hon secretary of the society, Mr A. E. Roche, 140, Harley Street, London, W.1

Medical Group of Left Book Club

. Prof Millais Culpin took the chair on Jan 26, when Dr Harold Balme spoke to the first meeting of this group. Dr Balme appealed for medical help for the Chinese people, and the meeting elected a committee for this purpose, whose first task will be to arrange for some of the refugee doctors who have returned from Spain to continue their work in China, where their experience of war conditions should prove of value. Those interested in the China medical aid committee of the group should write to Dr. Hill, 162, Kingston Road, London, S W 19

The next meeting of the group will be held at 8 30 P M. on Wednesday, March 1, at 101, Great Russell Street, W C 1, when Mr. Aleck Bourne will open a discussion on some social aspects of abortion The group intends to meet on the first Thursday of each month, and further information may be had from Dr M T. Parker, 207, Dumbarton Court, Brixton Hill, S W 2.

Society of Apothecaries of London

A livery dinner of the society was held at Apothecaries Hall on Feb 21 In proposing the Presidents of the Royal Colleges Dr Reginald Hayes, the master, recalled the long and close association between the society and these colleges The physicians' president was to accompany the apothecaries on their annual search for adulterated medicine in the local shops The surgeons' president was even more closely associated with the society, for he had been its master last year In reply, Mr Hugh Lett said that the relations of his college with the apothecaries had always been friendly, for a long time licentiates of the society went on to take the M.R C S because their licence did not cover the practice of surgery The society was the first licensing body to insist on a definite standard of preliminary education and evidence of an adequate course of study It was the only licensing body in the world which was also a city company (and indeed the only city company to be called a society) Mr Vernon Cargill, senior warden, proposed The Guests, coupled with the names of Prof. W. Fletcher Shaw, president of the Royal College of Obstetricians and Gynæcologists, and of Mr J. L P Denny, master of the Barbers' Company From the barbers, he said, the surgeons were born, and the Barbers' Company had many relics of the connexion which their offspring might envy; for example, the magnificent Holbein of Henry VIII presenting the company's charter. Ten years ago Prof. Fletcher Shaw and the late Prof. Blair-Bell had conceived and given birth to a college, now entitled to be called royal, with fellows, members, and diplomates to the number of 800, which had already justified itself by the part it had played in the Midwives Act and in the development of anæsthesia in midwifery. In reply, Prof. Fletcher Shaw said the college had grown quicker than could possibly have been anticipated, a proof that it had met a real need. Mr Denny remarked with approval that the apothecaries were now the only city company to practise their trade.

German Radiological Society

The thirtieth congress of this society will be held at Stuttgart from May 24 to 27 Further information may be had from Dr. A Reisner, Herdweg, 74A, Stuttgart N

British Medical Association

The annual address to senior students and newly qualified practitioners arranged by the metropolitan counties branch of the association will be given on Tuesday, March 14, at B M A House, Tavistock Square, W C 1, at 5 30 P M Mr. W McAdam Eccles will speak on pitfalls in the final examination and the first year of practice. Cards of admission may be had from the secretary of the branch at B.M A House

Parkes Memorial Prize

No award of this prize has been made for 1938 In awarding the prize for 1939 first consideration will be given to original articles or reports of investigations on naval or military hygiene which have been published in a medical journal. The prize, which consists of a gold medal and £30, is open to medical officers of the Royal Navy, Army, and Indian Army, with the exception of the teaching staffs of the Royal Naval Medical College, Greenwich, the Royal Army Medical College, London, and the Army School of Hygiene, Aldershot Further information may be had from the War Office

Chadwick Lectures

On Tuesday, Feb. 28, at 5 30 P M, Prof M Greenwood, F R S, will give a Chadwick lecture at 26, Portland Place, London, W 1 He will speak on occupational and economic factors of mortality At the same time on March 14, at 90, Buckingham Palace Road, S W 1, Dr J. B Howell will discuss the preservation of child life. At the Chelsea Physic Garden, Swan Walk, S W 3, on June 15 at 5 30 P M, Prof R Ruggles Gates, F R S, will lecture on plant genetics and human welfare Further particulars of the lectures may be had from the secretary of the Chadwick Trust, 204, Abbey House, S W.1

Vacancies

For further information refer to the advertisement columns

Albert Dock Hosp, Alnwick Road, E.16—Second res M O, at rate of £110

Altrincham, St Anne's Hosp—Res surg O, at rate of £200

Bath, Royal United Hosp—H S, at rate of £150

Bearsted Memorial Hosp, Underwood Street, E 1—Res M.O, at rate of £100

Birmingham, Dudley Road Hosp—Jun M O, at rate of £200

Birmingham, Romsley Hill Sanatorium—Res asst M O, £240–£275

British Postgraduate Medical School, Ducane Road, W 12—Res anæsthetist, at rate of £150

Cambridge, Addenbrooke's Hosp—Res anæsthetist and emergency officer, at rate of £130

Canterbury, Kent and Canterbury Hosp—H S, at rate of £125

Central London Throat, Nose, and Ear Hosp, Gray's Inn Road, W C 1—Third res H S, at rate of £75

Central Midwives Board, 23, Great Peter Street, Westminster, S W 1—Supernumerary examiners

Charing Cross Hosp, W.C 2—Surg reg, £150 Also registrar to fracture clinic, at rate of £100

Chester Royal Infirmary—H P, H S, also H.S to ear, nose and throat, &c., dept, each £150

Connaught Hosp, E 17—Hon physician

Cornwall County Council Education Dept—School medical inspector, £600

Devonport, Prince of Wales's Hosp—Sen and Jun H S, at rate of £130 and £120 respectively

Dreadnought Hosp, Greenwich, S E 10—H S, at rate of £110

Dublin, St Anne's Skin and Cancer Hosp., Northbrook Road—Asst. radiologist, £300–£400.

Dundee Royal Infirmary—Hon asst visiting obstetrician and gynæcologist

Ealing, King Edward Memorial Hosp—Res M O, at rate of £275

Eastbourne County Borough—Deputy M O H and deputy school M O, £600

Exeter, Wonford House—Asst. M O, £350.

General Lying-in Hosp, York Road, Lambeth, S.E 1—Jun. res M O and anæsthetist, at rate of £100

Golden Square Throat, Nose and Ear Hosp, W 1—Hon. anæsthetist Registrar Also clin asst

Guildford, Royal Surrey County Hosp—Two H.S's to spec depts, each at rate of £150

Hertford County Hosp—H.P, at rate of £150

Hosp for Consumption and Diseases of the Chest, Brompton, S W.3—H P for Frimley Sanatorium, £100

Hull, Beverley Road Institution—Asst M.O, £350

Invalid and Crippled Children's Hosp, Balaam Street, E 13—H.P, £100.

aq Government —Ear, nose and throat specialist Iraq Dinars 150 per mensem

leworth West Middlesex County Hosp , Twickenham Road —Cas M O £350

ellering and District General Hosp —H P , at rate of £150

ondon County Council —Asst dist M O £150

ondon Hosp , E 1.—Surg first asst and registrar £300 Also res anæsthetist, £150

ondon Lock Hosp , 283, Harrow Road, W 9 —Res M O to all depts , at rate of £175

ondon University —Univ chair of medicine at St Mary's Hosp medical school, £2000 Also studentship in physiology, £100

anchester Ancoats Hosp —Cas O £150

anchester, Crumpsall Hosp —Res surg O , £100

anchester University.—Lecturer in human physiology

argate Royal Sea Bathing Hosp —H S at rate of £200

elton and Belvoir Rural District Council &c —M.O H , £800

orwich, Norfolk and Norwich Hosp —Hon physician

ago University New Zealand —Lady King Scholarship £600

xford University —First asst in dept of anæsthetics £600

lymouth Prince of Wales s Hosp Lockyer Street —H S , at rate of £150

oplar Hosp , East India Dock Road E 14 —Hon radiologist

rince of Wales's General Hosp N 15 —Hon asst radiologist

rincess Beatrice Hosp , Earl s Court S W 5 —Cas O and obstet H S , at rate of £110

rincess Elizabeth of York Hosp for Children, Shadwell, E 1 —H.P at rate of £125

ueen's Hosp for Children, Hackney Road E 2 —Dental surgeon, £1 7s 3d per session

ichmond Royal Hosp , Surrey —Res M O , £200

oyal Cancer Hosp , Fulham Road, S W 3 —Asst physician Radium therapeutist £650 Asst radiologist for therapeutic dept and asst radiologist to diagnostic dept., each £350 Also surg reg and med reg , each £150

oyal Eye Hosp , St George's Circus, S E 1 —Sen H.S and two asst. H S 's, at rate of £150 and £100 respectively

oyal Free Hosp , Gray s Inn Road W C 1 —Res cas O at rate of £150

oyal London Ophthalmic Hosp City Road E C 1 —Outpatient officers £150–£400 Also first asst M O s £150

oyal Masonic Hosp , Ravenscourt Park, W 6 —Two res surg O's, each at rate of £250

oyal Naval Medical Service —M O s

oyal Northern Hosp , Holloway N 7 —Pathological registrar, £200 Also H P , at rate of £70

oyal Waterloo Hosp for Children and Women Waterloo Road, S E 1 —Anæsthetist, £100

t Bartholomew s Hosp E C 1 —Dental H S £80

t George's Hosp , S E 1 —Surgeon to ear nose, and throat dept.

t Peter s Hosp for Stone, &c Henrietta Street, Covent Garden, W C 2 —H S , at rate of £75

heffield, Royal Infirmary and Hosp —Neurological surgeon

methwick County Borough —Sen asst M O H , and asst school M O , £650

outh London Hosp for Women, Clapham Common, S W 4 —H.P , at rate of £100

toke-on Trent Stallington Hall Certified Institution, Blythe Bridge —Med supt , £800

ancred s Studentships —Each £100

ilbury Hosp , Essex.—Med supt , £200 Also H S , at rate of £140

akefield, Clayton Hosp and Wakefield General Dispensary —Res surg O £250

alsall County Borough —Asst. M O H , £500

arrington Borough General Hosp —Res M O , £225

est Riding County Council.—Supervisor of meals £300

ork City —Asst M O H £350

edical Referee under the Workmen s Compensation Act 1925, for the Evesham (Circuit No 22) Banbury and Shipston on-Stour (Circuit No 36) Alcester Stratford on Avon and Warwick (Circuit No 53) County Court Districts Applications should be addressed to the Private Secretary, Home Office, Whitehall London S W 1, before March 14

Medical Diary

Feb 27 to March 4

SOCIETIES

OYAL SOCIETY OF MEDICINE 1, Wimpole Street, W 1

Monday

Odontology 8 P M , Dr S D Elliott Bacteræmia and Oral Sepsis Mr S Wilson Charles The Madder Method and the Modern Conception of the Growth of the Jaws

Tuesday

Medicine and United Services 8 30 P M , Prof B A McSwiney Colonel D T Richardson, Group Captain R W Ryan and Surgeon Lieut Commander L J Corbett Assessment of Physical Fitness

Wednesday

History of Medicine and Clinical 5 P M , Sir Humphry Rolleston and Dr G de Bec Turtle History of Clinical Teaching in Great Britain

Surgery 8 30 P.M Miss Catherine Lewis, Miss D C Staveley and Miss F H Rockstro The Differential Diagnosis and Treatment of Ureteric Calculi

Friday

Otology 10 30 A M (cases at 9.30 A.M) Mr Philip Scott and Mr Lionel Colledge Malignant Disease of the Ear (excluding Lupus)

Laryngology and Otontology 5 P.M (cases at 4 P M), Mr A T Pitts Mr A J Wright and Mr E A Hardy Antral Infection of Dental Origin

Anæsthetics 8 30 P M , Dr Ronald Jarman Deaths under Anæsthesia from 1931 to the Present Date

MEDICAL SOCIETY OF LONDON 11 Chandos Street W 1

Monday —8 30 P M , Mr W Rowley Bristow and Mr T P McMurray Principles of Modern Treatment of Fractures of the Extremities

Wednesday —9 P M Prof G Grey Turner Surgery of the Gall bladder and Bile ducts (Second Lettsomian lecture)

HUNTERIAN SOCIETY

Monday —9 P.M (Mansion House E C 4), Mr Cedric Lane-Roberts A Plea for the Woman in Gynæcology and Obstetrics (Hunterian oration)

WEST LONDON MEDICO CHIRURGICAL SOCIETY

Friday —8 30 P M (De Vere Hotel Kensington W 8), Dr F H Hudson Mr Cecil Joll and Mr A Simpson Smith Pre- and Post operative Treatment

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS Pall Mall East S W 1

Tuesday —5 P M , Dr Donald Stewart Industrial Incapacity and Modern Medicine (Last Milroy lecture)

Thursday —5 P M Dr H P Himsworth Diabetes Mellitus (First Goulstonian lecture)

CHADWICK LECTURE

Tuesday —5 30 P.M (26, Portland Place W 1), Prof M Greenwood, F R S Occupational and Economic Factors of Mortality

TAVISTOCK CLINIC, Malet Place W C 1

Monday —4 30 P M Dr H V Dicks Delinquency and its Psychological Treatment

Thursday —4 30 P M Dr T W Mitchell The Psychoses

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane Road W 12

Tuesday —4 30 P.M Dr Levy Simpson Diseases of Endocrine Glands

Wednesday —Noon clinical and pathological conference (medical) 2 P M , Prof J H Dible The Diagnostic Pathology of Tumours 3 P M clinical and pathological conference (surgical) 4 30 P M , Prof F C Dodds Hormones in Relation to Medicine and Pathology

Thursday —2.15 P M , Dr Duncan White radiological demonstration 3 30 P M , Dr J M Robson The Ovarian Hormones

Friday —2 P M clinical and pathological conference (obstetrics and gynæcology) 2 30 P M , Mr C Price Thomas Empyema and Abscess of the Lung

Daily 10 A M to 4 P.M medical clinics, surgical clinics and operations obstetrical and gynæcological clinics and operations

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W C 1

Thursday —2 P.M Mr Denis Browne When and How to Give a Blood Transfusion 3 P M , Dr W G Wyllie Continued Fever of Obscure Origin

Outpatient clinics daily at 10 A.M and ward visits at 2 P.M

NATIONAL HOSPITAL, Queen Square W C 1

Monday —Mr G Elmquist demonstration of remedial exercises

Tuesday —D J St C Elkington Forms of Progressive Muscular Atrophy (1)

Wednesday —Dr F M R Walshe clinical demonstration

Thursday —Mr G Jefferson Head Injuries (2)

Friday —Dr E A Carmichael Deficiency Diseases (3)

Outpatient clinic daily at 2 P.M

ST GEORGE'S HOSPITAL S W 1

Thursday —5 P.M , Dr Macdonald Critchley neurological demonstration

WESTMINSTER HOSPITAL, Horseferry Road S W 1

Tuesday —5 P.M (medical school), Dr S P Meadows Intracranial Tumour. Mr E P Brockman Gas Gangrene

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL Gray s Inn Road W C 1

Friday —4 P.M Mr W G Scott Brown Allergy

HAMPSTEAD GENERAL AND NORTH WEST LONDON HOSPITAL, N W 3

Wednesday —4 P.M Mr Arthur Gray Difficulties in Gynæcological Diagnosis

LONDON SCHOOL OF DERMATOLOGY, 5, Lisle Street W C 2.

Tuesday —5 P M Dr J A Drake Treatment in Diseases of the Skin (Chesterfield lecture)

ST JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE Ranelagh Road, S W 1

Friday —3 30 P.M , Dr Philip Ellman Drug Treatment in the Rheumatic Diseases

SOUTH WEST LONDON POST GRADUATE ASSOCIATION

Wednesday —4 P.M (St James' Hospital, Ouseley Road S W 12) Dr C F Lakin demonstration of medical cases

FELLOWSHIP OF MEDICINE AND POSTGRADUATE MEDICAL ASSOCIATION, 1 Wimpole Street, W 1

Monday to Saturday —Royal Waterloo Hospital, Waterloo Road S E 1, all-day refresher course in medicine surgery and gynæcology —St Mary's Hospital, Paddington, W 2 Tues and Thurs , 8 P.M clinical and pathological course for M R C P —Brompton Hospital, S W 3 M.R C P course in chest diseases (5 15 P.M , twice weekly) —Medical Society of London 11 Chandos Street W 1 Mon Wed and Fri , 5 15 P M primary F R C.S physiology course

LEEDS GENERAL INFIRMARY

Tuesday —3 30 P.M Mr Digby Chamberlain Surgical Conditions of the Spleen

MANCHESTER ROYAL INFIRMARY

Friday —4 15 P.M , Dr A Ramsbottom medical cases

GLASGOW POST GRADUATE MEDICAL ASSOCIATION

Wednesday —4 15 P.M (Western Infirmary) Dr [illegible] D McLachlan Skin Diseases

NOTES, COMMENTS, AND ABSTRACTS

THE CANCER BILL

Mr. Walter Elliot, the Minister of Health, received a deputation from the British Medical Association on Tuesday last, introduced by Sir Kaye Le Fleming and including Prof. R M. F. Picken, Sir Henry Brackenbury, Mr. Bishop Harman, Dr. J. W. Bone, and Dr. Charles Hill (deputy secretary). The deputation expressed the hope that the cancer schemes would make use of the facilities of the larger voluntary and municipal general hospitals, which normally provide the specialist services in each region, and would not establish separate special clinics not closely linked with the general hospitals. They also suggested that the arrangements should include the provision of consultant facilities in the homes of patients. They trusted that the Minister would direct the attention of local authorities to the desirability of the development of schemes on a regional basis, and that the Minister would make full use of his power to require local authorities to combine in making arrangements for diagnosis and treatment Finally they stressed the desirability of a system of uniform records of clinical findings

In reply Mr. Elliot said he was appointing a subcommittee of the Ministry's medical advisory committee to advise him on general principles with regard to the treatment of cancer and to consider questions referred to them He proposed to consult this subcommittee on the general exercise of his functions under the Cancer Bill, including the principles to be applied Broadly speaking, he agreed that maximum use should be made of the facilities provided by the existing voluntary and municipal general hospitals, and that clinics should normally be closely associated with these hospitals. As for consultants, they would normally not be available except at hospitals and clinics, but it might be found desirable to make arrangements for consultants to visit the homes of patients in exceptional cases. In many regions it would clearly be desirable that a large and well-equipped hospital should serve the areas of more than one local authority He was in full agreement about the collection of records on a uniform basis.

AN EARLY MEDICAL TEXT

THE "Liber de Diversis Medicinis," which has been reprinted and edited by Margaret Ogden, Ph.D. (London: Humphrey Milford, Oxford University Press. 1938. Pp. 160. 10s), is contained in a manuscript preserved at Lincoln Cathedral and known as the Thornton MS The medical portion of the manuscript is only about a ninth of the whole: the larger part consists of romances, sermons, religious poetry and mystical themes

Robert Thornton, who is believed to have been the writer of this and a somewhat similar manuscript in the British Museum was, it is thought, an amateur scribe; one, that is, who was not professionally trained to the writing of MSS But Dr. Ogden makes no suggestion as to why an amateur should have devoted his time and labour to the compilation of so heterogeneous a collection Whatever his motive may have been the medical part of the MS. has no pretensions to originality; it is merely a collection of the most approved remedies of the period arranged more or less under the headings of the various parts of the body affected. Such collections can be paralleled from the fifth to the fifteenth century, and represent a traditional medicine which remained for the most part practically unaltered from the time of Galen to the revival of learning, and left their traces on the pharmacopœias till well into the eighteenth century. To the general reader the chief interest of Thornton's compilation lies in the occasional interruption of his interminable list of complicated recipes by short disquisitions on more human topics. One of these gives directions for the preservation of health in a visitation of the plague, and of the methods of treatment when the disease has declared itself Other digressions relate to various charms and spells and one gives the Latin form of the mass which is to be said for the cure or avoidance of the "fallan evyll," that is, epilepsy There is also an interesting list of the signs which betoken the approach of death: it includes nearly all those by which the Hostess in Shakespeare recognised Falstaff's approaching end

Dr. Ogden has provided a good glossary so that it is possible for the inexpert in the language of the fifteenth century to read Thornton with little difficulty but, we are bound to add, with small hope of profit The main interest both for Dr. Ogden and the general reader is not medical but philological.

X-RAY EQUIPMENT

Messrs Philips have issued a new brochure illustrating the improvements they have made in the design of their radiological units *Metalix protected* tubes and gas valves, and the Rotalix rotating anode tube, are well enough known to need no further description, but the latest apparatus shows an important advance in the degree of radiographic efficiency obtained and the improved inherent "regulation" characteristic of the transformers Part of this advance is a direct result of research on insulating material of higher dielectric strength. The diagnostic apparatus has been kept simple in design and is easy to use even when a number of different features are incorporated as in the Universal combined couch and screening stand and in the control table illustrated. It is now possible by using a special rotating tube plant to carry out radiography of the thorax with an exposure time of 1/30th of a second For therapy two standard units are shown—the Maximus T, which operates at 200 kV., 30 mA, and the Metalix contact and cavity therapy unit The first has an output of 150 r per min measured free in air at 40 cm, with a half-value layer of 1 mm. of copper and filtration 0 5 mm copper, 1 mm aluminium. In the second the cathode is earthed and situated at a distance of only 18 mm from the aperture, with the result that the output in contact with the radio-transparent cap reaches at 50 kV the extremely high figure of 7200 r per min. In addition to these units, Messrs. Philips have been engaged in the last five years on the construction of super-voltage therapy plant on the cascade system, using the ingenious method of establishing a common vacuum in a sectional tube by bombarding thin metal foils, which close the ends of the separate units, with the electron beam from the cathode.

PROS AND CONS OF THE TOOTHBRUSH

THE value of toothbrushing is a matter on which strong opinions are held The damage caused by unskilled use of the brush is a commonplace amongst dental surgeons, and the calamitous state of the mouths of middle-aged patients who do not clean their teeth is well known to the physician. The whole question is thoroughly thrashed out by Mr Isador Hirschfeld, D.D.S, in "The Toothbrush: Its Use and Abuse" (London: Henry Kimpton 1939. Pp. 591. 35s.). Many readers will be surprised to note how small a part of his book deals with the relation of toothbrushing to dental caries In fact however, there is very little evidence on this matter, and that little is adequately summarised The bulk of the volume deals with the effects of the brush on the soft tissues about the teeth, the damage it may cause, and the value of skilful brushing in preventing disease of the gums or treating disease already present. The author does not underestimate the background of systemic disturbance associated with much oral disease, though he may seem to place a degree of confidence in local treatment more often found among dental surgeons who, as commonly in this country, consider local factors of causation the more important Many of the conditions described can be treated in other and, some may think, better ways than those advocated, but the title of the book disarms criticism on this score The short chapter describing the drastic effects of various proprietary bleaching preparations containing strong mineral acids should be noted by those responsible for the medical care of young women, since those who employ such remedies for whitening the teeth do not visit the dental surgeon

TYPHUS FEVER AND TUBERCULOSIS

IN the *Journal of the Egyptian Medical Association* (1938, 21, 451) Dr S El Kholy reports that during an extensive epidemic of typhus fever all the patients except three gave a positive Weil-Felix reaction These three showed characteristic clinical symptoms with a sudden onset, drowsiness, severe prostration and a rash On the fourteenth day their temperatures dropped but continued to oscillate between 98 6° and 100 4° F Clinical and radiological examination of their chests showed the presence of pulmonary tuberculosis in all three, and in two tubercle bacilli were found in the sputum In order to throw light on the question whether the previous attack of tuberculosis was the cause of the lack of antibodies to *Bacillus proteus* X19 a guinea pig which had been injected 35 days previously with tubercle bacilli was injected intraperitoneally with 2 c cm of blood from a typhus patient It was found that the tuberculous guinea pig developed the antibodies of the Weil Felix reaction to a much smaller extent than a control animal, the titre being low with no tendency to rise El Kholy concludes that the presence of tuberculosis prevents the full development of antibodies

SPEECH DEFECT

NOT many years ago the schoolboy who could not keep pace with his fellows was put down as a dunce, a suitable butt for the derision of his fellows The overgrown boy with acidosis was thought to be lazy, the frightened boy a fool, and the stammerer a figure of fun This view dies slowly but the educationist is tending more and more to call in the physician and the psychologist to help him remove whatever is preventing the child from reaching a reasonable standard in his school work Among the common causes for the failure of a child to reach the approved standard is the handicap of speech defect The child with a stammer usually tries to avoid notice, and the sympathetic school teacher, finding how painful it is for him to speak before others, seconds his attempt to hide by ignoring him This separates him from the class, tends to produce a feeling of inferiority, and of course retards his progress In those centres which have an expert available the stammering child can be given special classes and the cause of his backwardness can be removed, but stammerers are many and opportunities for treatment are as yet very few

In their "Principles and Practice of Speech Correction" (London Sir Isaac Pitman and Sons 1938 Pp 208 10*s* 6*d*) J F Bender and V M Kleinfeld of New York draw attention to the importance of this problem and make a worthy attempt to solve it The basic principles upon which their work is founded are as applicable in England as in the United States Their object is to put forward an ideal method for dealing with the student who suffers from speech defect together with a scheme for training teachers and clinicians to undertake the work In their small book they do no more than outline their scheme They do not attempt to deal with the details of treatment and dismiss in one short chapter the important question of the relations between parent and child Nevertheless, their suggestions are worthy of study

There are at present two schools of thought as to the cause of stammer Some maintain that the fault lies in the mechanism of speech and that the fear element in the condition results from the speech defect, while others think that an anxiety state originates the stammer, and that if this is removed the stammer disappears T C Norris in his book "Thought and Speech" (Same publishers 1938 Pp 100 3*s* 6*d*), propounds a third theory and suggests an original method of cure Norris will have nothing to do with those who treat stammer by dealing with the mechanism of speech He admits that their method produces quick results, but holds that it fails the stammerer in an emergency, so that he is apt to lose confidence He is not prepared to accept the psychological theory, and he looks upon relaxation, such as is advocated by Boome and Richardson in the book reviewed on p 456, as a purely negative measure Norris believes that the stammerer's mind works more quickly than that of ordinary people, so that thought outpaces speech, and he recommends the exercise of controlling thought at all times to the speed at which speech can travel, when speech is attempted, thought will then keep pace with it He claims that if the mind concentrates on the sound of one word at a time, speech will be natural and easy, and its mechanism can be ignored It is undeniable that good speaking, and especially good public speaking, demands that the mind must be sufficiently controlled to avoid interference with clear thinking by extraneous ideas Norris was himself a stammerer and he says that he has arrived at his conclusions "after nearly sixty years of earnest thought" He has certainly made out a good case for his views

A NEW VACCINE BOTTLE

IN the past it has been found difficult to sterilise rubber-capped vaccine bottles efficiently by heat because the rubber diaphragm will not stand the pressure of an autoclave A new type of bottle designed by Mr H Berry, B Sc[1] of the Pharmaceutical Society's research laboratory, should largely overcome this disadvantage The bottle is made of Woods resistant glass which complies with tests for alkalinity A skirted rubber cap fits inside and over the neck (fig 1) and is in turn covered by a moulded bakelite screw-cap (fig 2) Inside this is a fabric covered rubber washer which can be soaked in antiseptic and will thus render the outer surface of the rubber cap sterile when screwed home It is said that this type of bottle will withstand autoclave pressures up to 60 lb It is manufactured by Messrs Britton Malcolm and Waymark of 30 Southwark Bridge Road S E 1

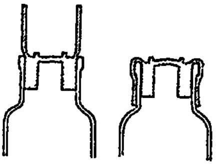

FIG 1—Section of bottle showing how rubber cap is turned down over the neck

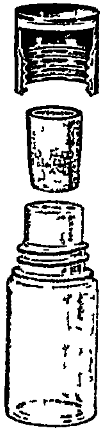

FIG 2—Bottle with inner rubber cap and outer bakelite cap

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[1] *Pharm J* 1938, 86 627

DIPHTHERIA IMMUNISATION

The success of the immunisation campaign in Toronto (*Lancet*, Jan 7, p. 45) must not be allowed to overshadow the even more impressive record of Hamilton, Ontario, a city with a population of 155,000, of whom about 40,000 attend schools or colleges Hamilton is well known as one of the very earliest cities in Canada to carry out immunisation against diphtheria on a large scale. This work was begun in 1922 by Dr J. E. Davey, now the city school medical officer, and the Hamilton *Spectator* has recently quoted the results achieved. For the last eight years there have been no deaths from diphtheria and for the last five not a single case of the disease! In 1922, when the population was 118,243, there were 747 cases of diphtheria with 32 deaths. "From then on," says the report, "the record is one of rapid and unfaltering reduction": in 1924, 501 cases and 32 deaths; in 1926, 121 cases and 3 deaths; in 1927, 11 cases and 1 death; in 1931, 5 cases and no deaths; 1 case in 1932, 3 in 1933, and since then none. This complete victory is rightly regarded as one of the proudest achievements of the board of health.

RECOGNITION OF CHIROPRACTORS IN ZÜRICH

Some time ago a number of citizens of the canton of Zurich started an agitation for the legal recognition of chiropractors. A plebiscite was held on Jan. 22 when 72,500 voted for recognition and 56,500 against. The total number of electors on the register is 200,000. An intense campaign in the press and elsewhere had preceded this plebiscite, the chiropractors using propaganda on an American scale, and evidently being able to call upon large financial resources. Our Swiss correspondent remarks: "The result is obviously a blow to official medicine and may be taken as a vote of lack of confidence. On the other hand it is said that, as in the United States, chiropraxis is already on the wane, so that the practical value of the new legal recognition may be a temporary one."

AN AID TO EXAMINATION OF THE THYROID

Direct examination of the thyroid gland by inspection and palpation to determine its size, shape, and consistence is rendered easier, especially in an obese patient with a bull-neck, by a manœuvre described by G. Pizzillo (*Rif. med.*, Jan 21, 1939, p. 83). This consists in the patient throwing his head backwards and pressing his occiput forcibly against the palms of his clasped hands Meanwhile the examiner, facing the patient sideways and watching the front of the patient's neck, should see the thyroid lifted upwards and thrown into relief together with the bellies of the sternocleidomastoid muscles The patient next makes forcible expirations, whereupon the blood-vessels of the thyroid become engorged and make the gland still more prominent

TROPICAL DISEASES BULLETIN

The broken continuity of the text in a collection of abstracts tends to make a journal which is made up of them look like a dictionary, and to make it less easy to read. To overcome this disadvantage it has been decided to preface each section of abstracts in the *Tropical Diseases Bulletin* by an introductory précis in which the reader will find quickly the salient information set out in fuller detail in the abstracts which follow.

This new arrangement has been adopted in the January number of the bulletin which also contains the first of a series of articles reviewing the advances made in tropical medicine from year to year. Each of these articles will give a connected account of the abstracts on a particular subject which have appeared in the bulletin during the preceding year.

Appointments

Dodd, John, M B N U I, L M, resident medical officer at St Mary's Infirmary, Armley

Ewen, J H, M R C P E, D P M, medical superintendent at Springfield Mental Hospital, London

Iliff, Daisy, B A. Lond, M R C S, D P M, assistant resident medical officer at Erdington House, Birmingham

Kenton, Colman, M R C S, assistant medical officer and deputy medical superintendent at St Luke's Mental Hospital, Middlesbrough

Mackenzie, E F W, M B Edin, D P H, director of water examination to the Metropolitan Water Board

Mansi, R L, M R C S, D M.R E, assistant radiologist to the Miller General Hospital, Greenwich

Moore, K A, M B Sydney, resident surgical officer at the Royal Manchester Children's Hospital

Parkinson, J P, M B N.Z, assistant medical officer at Wooley Sanatorium, near Hexham

Pimm, Allan, M R C S, hon visiting radiologist to the Taunton and Somerset Hospital

Rosehill, Sydney, M B N U I, resident medical officer at St Luke's Hospital, Huddersfield

Tillie, J J, M B Glasg, resident medical officer at the Infants Hospital, London

Watson, G N, M B Leeds, resident medical officer at St James's Hospital, Leeds

London County Council—The following appointments are announced A M O (I) or (II) = assistant medical officer (class I) or (class II), A D M O = assistant district medical officer

Sangster, A H, M D Dalhousie, F R C S, A M O (I), St James',
Cochrane, H L, M B Belf, F R C S, A M O (I), St Alfege's;
Millard, P T, M B Sydney, F R C S E, A M O (I), St Giles',
Kelly, William, M B N U I, A.D M O, South Poplar;
Brown, H D, M B Glasg, A D M O, Southwark (part),
Lawler, Nicholas, M B N U I, Woolwich (north of river),
Bates, Doris C, M B Sydney, M C O G, A M O (I), St James', and
Seymour, S G, M B N U I, A M O (I), St Alfege's

St Mary's Hospital for Women and Children, Plaistow—The following appointments are announced —

Applin, H W, M S Lond, D O M S, hon ophthalmic surgeon,
McDonald, H, M B Lond, resident surgical officer, and
Mellersh, Mary D, M B Lond, house physician

Births, Marriages and Deaths

BIRTHS

Allison—On Feb 19, at Alderley Edge, Cheshire, the wife of Dr Arthur A Allison—a son

Cassidy—On Feb 17, in New York, the wife of Dr Michael Ardagh Cassidy—a son

Hulke—On Feb 17, the wife of Sydney B Hulke, F R C S—a daughter

Marshall—On Feb 2, at Heliopolis, Egypt, the wife of Flight-Lieutenant A Bingham Marshall—a daughter

Veale—On Feb 17, the wife of Dr W F De C Veale of Worthing—a daughter

MARRIAGES

Forbes—Moore-Browne—On Feb 18, at Holy Trinity, St Marylebone, John Forbes, M R C S, to Aimée Rosemary Patricia Moore-Browne

DEATHS

Dantra—On Feb 18, Lieut -Colonel Sorabshaw Hormasji Dantra, M D Aberd, I M S (retd) (Burma), of Broadhurst Gardens, Hampstead, N W 6

French—On Feb 19, at Surbiton, Alexander Martin French, M R C S, L S.A, Fleet Surgeon, R N (retd), aged [illegible]

Jenkins—On Feb 15, at Wimpole Street, W, George John Jenkins, O B E, M B Edin, F R C S, aged 65

Lewis—On Feb 20, at West Hill, Highgate, N 6, Llewellyn Lewis, O B E, M D Durh

Lindop—On Feb 16, at Kersal, Manchester, Surgeon Captain Llewellyn Lindop, M R C S, R N (retd)

McCardie—On Feb 14, at Warwick, William Joseph McCardie, M B Camb, aged 74

McMurrich—On Feb 9, in Toronto, Prof James Playfair McMurrich M A, Ph D, LL D, emeritus professor of anatomy, University of Toronto

Rumboll—On Feb 16, in Leeds, Sydney Rumboll, F R C S E

Simpson—On Feb 19, in Sheffield, Graham Simpson, F R C S, aged 61

N B—A fee of 7s 6d is charged for the insertion of Notices of Births, Marriages and Deaths

ADDRESSES AND ORIGINAL ARTICLES

A PLEA FOR THE WOMAN IN GYNÆCOLOGY AND OBSTETRICS*

BY CEDRIC LANE-ROBERTS, M S Lond , F R C S , F R C O G

GYNÆCOLOGICAL AND OBSTETRIC SURGEON TO THE ROYAL NORTHERN HOSPITAL, CONSULTING OBSTETRIC SURGEON TO QUEEN CHARLOTTE'S HOSPITAL, LONDON

William Hunter's great honesty is shown by his not sparing to chronicle his mistakes "When I can be of any service by telling a failure of my own," he said, "I shall relate it readily, though not with that pleasure as a case wherein I have been successful." With his example before us, can we say that scientific progress has succeeded in making woman's lot easier, healthier, and happier? Can we say that the march of civilisation is tending to help in any way to eliminate fear from women?

Modern science has advanced steadily in the past quarter of a century from every aspect, yet it is evident that there is still much to be done, and that much calls for prompt, efficient, and practical consideration, especially in this country

PREGNANCY

Without doubt the more primitive type of woman among us feels at her best when carrying a baby, but civilisation and enforced city life increase the incidence of the minor ailments of pregnancy, which are also commoner among women who resent their pregnancy

Pregnancy must not be looked upon as an illness, hence everything should be done, from the earliest weeks onwards, to dispel all fear and apprehension The problem of diet in pregnancy is also most pressing Last century the advocates of preventive medicine fought the battle for proper sanitation, so this century they will fight the battle for proper nutrition Just as today sound drains and clean water are the sine qua non of civilised life, so will a proper diet come to be regarded as the necessity of all classes of the community

As regards maternal mortality and morbidity much has been done by antenatal care, improved obstetrics, and the latest methods of treatment of puerperal fever, but very little advance has yet been made in the care of pregnant women throughout the land A higher standard of physical motherhood is urgently needed In Soviet Russia there are heavy fines for refusing to employ pregnant women or for reducing their wages for reasons of motherhood, and two months' leave is granted besides the regular normal holiday at full wages In this country a recent Ministry of Labour report says that 900,000 married women go out to work, but of these 300,000 pass themselves off as single girls Often, if they told the truth, they would lose their jobs This surely is a wrong that should be righted, quite apart from its influence in encouraging infertility

Is not the pregnant woman the first and most important citizen in the land? Should not her diet, her well being, her general health, her home life and environment, her freedom from unnecessary anxiety, and her serenity of mind be the foremost concern of us all and of the state in particular?

ABORTION

William Hunter wrote "Knowledge of women has enabled me to say, though no doubt there will be many exceptions to the general rule, that women who are pregnant, without daring to avow their situation, are commonly objects of the greatest compassion, and generally less criminal than the world imagines" In Germany today every effort is being made to reduce the practice of artificially induced abortion and to aid the illegitimate child and its mother, who is given every assistance throughout the pregnancy and confinement and helped to obtain such employment afterwards as will enable her to keep the child under her own care Since illegitimate births are computed as between a tenth and a sixth of the total in that country, the woman who carries her illegitimate baby to term is treated with the greatest respect and consideration

Many changes have recently taken place in thought and practice in connexion with operations for abortion In Soviet Russia the swing over has been remarkable Previously the maternal morbidity and mortality from unskilled abortion were so high that in 1920 the operation of evacuation of the pregnant uterus was authorised by the government The 1920 decree regarding abortion thus laid down —

(1) That the operation should be performed free of charge at a Soviet hospital,

(2) That no abortion was to be performed except by a qualified doctor,

(3) That a midwife performing the operation should be liable to heavy penalties,

(4) That a doctor performing the operation for money should be liable to heavy penalties

In one year 250,000 abortions were performed by medical practitioners in public hospitals, with the result that maternal morbidity and mortality quickly diminished, but now, with the changed attitude due to the launching of an intensive population programme, instrumental abortion has been made punishable However, in the new law, there is no mention of contraception Can Russia, therefore, eliminate abortion without providing adequate contraceptive facilities for its population?

In this country the Abortion Law Reform Association is doing its utmost to help in the elucidation of this very difficult problem and will be aided by the conclusions of the Birkett Commission, which have not yet been published.

LABOUR

William Hunter evidently disapproved of "meddlesome midwifery" —

> "In few cases, I think the forceps an useful instrument, to a poor woman that is quite exhausted they may be a considerable service, but I wish to God they had never been contrived I am convinced that the forceps has killed three, I may say, out of ten women that it has saved, and therefore we should never use it on any occasion but where it is absolutely necessary"

These words, it would seem, referred to the high-forceps operation when the fœtal head is floating with no attempt at engagement, a proceeding that has been completely replaced by the modern lower-

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* Abridged from the Hunterian oration of the Hunterian Society delivered on Feb 27, 1939

segment cæsarean section, from which such excellent results for both mother and baby are being obtained.

Nowadays, were the press to avoid publishing statistics of puerperal morbidity and mortality and emphasising the abnormal at the expense of the normal, much could be done to alleviate the fear of childbirth. Prof. Miles Phillips says:—

> "Institutional midwifery is on the upward grade. It is because of the increasing number of women who desire the relief from pain in childbirth, as well as the much to be desired lessening of the traumata of delivery."

Domiciliary midwifery cannot achieve these two, but can be aided by the obstetric flying squad which has come so much to the fore recently that most cities and big towns will soon have their own expert emergency service. Shock and antepartum and postpartum hæmorrhage are typical examples of the most urgent calls for this squad, which usually arranges for the nurse to take the outfit and meet the consultant at the house. Thus, in domiciliary practice, many hæmorrhage and "shock" cases can be successfully handled when such an expert emergency team is made available, whereas the act of moving these patients to hospital often meets with disastrous results.

Further, the Central Midwives Board are doing all that is humanly possible to improve the standard of midwifery service throughout the country.

At the same time the women of England undoubtedly owe a great deal to those workers who have been striving to bring to perfection a safe method of analgesia in midwifery. Minnitt, Chassar Moir, Elam, and others have done much to advance the gas-and-air method with their various types of portable apparatus. All are agreed, however, that for complete safety and so for universal application the machine must only be used by someone experienced in the method. This complicates the problem in rural districts where there is only one midwife, but in time that difficulty will, and must, be met.

The gas-and-air apparatus in some modification has come to stay, and in time should be available to every mother in Great Britain, whether in town or country, who may have need of it.

BREAST-FEEDING

The modern decline of breast-feeding has been receiving great publicity recently in the medical press, especially since Dr. J. C. Spence at last year's annual meeting of the British Medical Association provoked considerable thought and comment.

In many rural districts 95 per cent. of women manage to feed their babies successfully. But many factors—dietetic, endocrine, physiological and environmental—are at work in the establishment of lactation and some are very difficult to deal with.

Over-assiduity in the treatment of the nipples is not to be encouraged, certainly in some of the rather over-sensitive types, simple care in the last six weeks being found sufficient. How often one finds that the mother who has herself failed to nurse her babies is entirely and deliberately responsible for her daughter's subsequent and similar failure when the time comes. How often, also, the maternity nurse or her successor lets the mother slip into complementary, then supplementary, feeding with the usual result. Dr. Spence blames the mechanisation of breast-feeding in nursing-homes and maternity hospitals, claiming that the atmosphere of big hospital wards and crowded welfare centres does not encourage breast-feeding.

There is undoubtedly a very small proportion of women (perhaps 5 per cent.) in whom it is impossible to establish lactation; but there is a large group that could be more encouraged by the doctor, maternity nurse, mother, and husband, as well as by the clinic or welfare centre. In India the Hindu mothers are forbidden to eat meat, fish, or eggs; they are too poor to buy milk, and they have little fruit. Yet the babies gain steadily in weight for the first seven or eight months. Failure, therefore, cannot be altogether the fault of the mother's diet and its possible deficiencies.

When artificial feeding is necessary it is well to remember that the preservation of breast-milk, having been tried out elsewhere, is gradually coming into this country. It was found in 1933 that breast-milk heated to 175° F. on three successive days remained sterile indefinitely when properly refrigerated. This method only needs sound organisation and encouragement, after which considerable benefit should accrue in the feeding, especially of feeble infants. Already the Queen Charlotte's Hospital bureau of human milk is a going concern.

PUERPERAL SEPSIS

The medical profession of this country may well be proud of the brilliant research work that has emanated from Queen Charlotte's Hospital isolation block where, under the ægis of Dr. Leonard Colebrook and his colleagues, results have been and are still being produced that have been quoted all over the civilised globe.

In the last seven years' experience at the hospital the incidence of streptococcal infections has been 1 in 700 cases in hospital and 1 in 115 cases on "district"—i.e., six times more frequent than in hospital. These last very important figures point to the need for the increase of institutional treatment when possible. The Queen Charlotte's Hospital isolation block conclusions on chemotherapy make most encouraging reading. In hæmolytic streptococcus cases in the pre-sulphanilamide days 500 cases showed a mortality of 22·6 per cent. Since sulphanilamide was introduced, in two years there were over 300 cases with a mortality of 5·3 per cent., and in 1938 there were over 100 cases with 4 deaths—i.e., under 4 per cent., as against 22·6 per cent. previously. It is especially noteworthy that certain types of infection which the patients never previously were known to survive—e.g., generalised peritonitis with streptococcæmia—are now being cured.

POSTNATAL EXAMINATION

So much of the gynæcologist's time is spent in repairing the various traumata of labour, that the great importance of the postnatal examination has at last come to be fully realised. We need not quite aspire to the thoroughness of certain clinics that, about three or four weeks after delivery, wish to put almost every woman under an anæsthetic and there and then repair every slight tear of the cervix. Such measures in the end only increase the fear of childbirth and the dread of cancer and tend to lead procreation further from its natural course.

At this postnatal examination, usually six to eight weeks after delivery, a speculum should be passed and the cervix thoroughly investigated, since this is the stage at which local treatment may be needed. If there is superficial cervicitis, local electrical superficial coagulation could be performed in out-patients. If an endocervicitis with erosion is seen, dilatation should be done with thorough excision of the superficial tissues by the diathermy cutting loop. Prompt treatment at this stage prevents other troubles later on.

It is at this examination that sacro iliac strain may show itself and call for careful manipulation of the lumbar spine and sacro iliac joints If this condition appears at all during the pregnancy, as it often does, it should be tackled at once and not just made light of as one of the discomforts that must be endured, for very often a thoroughly dependable osteopath gets good and quick results by his manipulation without anæsthesia in such cases

EXAMINATION AT VARIOUS EPOCHS

In the hope of avoiding disturbances at the various epochs in a woman's life, it would seem wise to consult the family practitioner at certain times

(1) In the adolescent stage, if the periods are not setting in properly, for by this means a good many cases of uterine hypoplasia may be tackled in time, with the avoidance of subsequent amenorrhœa, hypomenorrhœa, and sterility

(2) At the premarital examination, which will be mentioned subsequently, for at this and the visit in early married life birth control or spacing of the children can be discussed

(3) During the first three months of the first pregnancy

(4) In the early forties before the menopause, when a thorough and general examination should be carried out

These examinations are meant to prevent disturbances at special times and to allay natural anxieties The frequent occurrence of the hypoplastic uterus, met with in the investigation of sterility in early married life, is causing observers to take more notice than heretofore of menstrual errors and endocrine dysfunction in the adolescent years Obesity at puberty, whether nutritive or endocrinal, should be dealt with in the same way as disorders of menstruation and not just passed by with the advice that the girl will grow out of it eventually

A premarital medical examination is now compulsory in Turkey, having been adopted in 1925 With them the law of public hygiene and the penal code prescribe penalties for all infraction of the rules concerning prenuptial examinations and the treatment of venereal disease "No marriage is permitted to those infected with syphilis, gonorrhœa, soft chancre, leprosy, or mental disease, unless they present a medical certificate stating that all danger of infection is over, and that the diseased person has made a complete recovery after a proper course of treatment "

Most European countries are now making efforts to introduce the premarital certificate of health Unfortunately it seems that only the more responsible and intelligent members of the community will conform to this, while the presumptive carriers of hereditary defects will be the least likely to fall in line The German government decreed that, after July, 1938, physicians' certificates of physical and mental fitness for procreation must be produced However, in the democratic countries it seems that a compulsory certificate at marriage is not considered a sound eugenic step It is wiser to encourage gradually the development of a eugenic conscience in this matter and, if possible, the voluntary filling in by each of the partners of something on the lines of the confidential schedule of the British Eugenics Society

As regards venereal disease at least the day is fast approaching when those about to marry should have a thorough medical examination In this country this would be only one of the many channels along which the newly established Marriage Guidance Council is hoping to help those seeking its advice In 1936 it was estimated that of the 125 million people in the U S A 12 million were suffering from syphilis, with an annual increase of over a million cases a year Now in nine states of the U S A both male and female applicants for marriage must produce medical certificates showing that both are free from syphilis, or, in some states, from all venereal disease

Turning to a later phase of life, it is coming to be understood how important is the examination from the gynæcological standpoint of women, both single and married, at about the age of 40 Much good advice and much reassurance can be given, minor adjustments done, and major surgery avoided It has been stated by one who ought to know better, that parous women should, before they reach the menopause, undergo a vaginal hysterectomy to avoid carcinoma This surely is a most reprehensible statement and seems to be on a level with another that has just now a very free transatlantic circulation among the most easily impressionable class, that every woman should have her cervix uteri cauterised after each confinement and that this procedure should frequently be accompanied by a curettage, again with the same preventive object in view I should like to ask my gynæcological colleagues how often they see a case of carcinoma of the cervix outside their hospital outpatients

The B M.A discussion last year on radiotherapy in non malignant uterine hæmorrhage should have gone far to allay the fears of many middle aged women who have need of active treatment for uterine hæmorrhage B W Windeyer, in pleading the cause of radiotherapy, whether by X rays or radium, quoted Leonard Phillips's collection, from twenty authors, of 7000 cases that were irradiated, showing a 95 per cent rate of cure and a mortality of 0 25 per cent The question of which is the preferable method—X rays or radium—must be carefully weighed, for in all series of cases will be some in which operation is contra indicated, others in which operation is advisable, and others in which the decision is hovering in the balance and for which sound judgment will be needed

THE MENOPAUSE

It is considered that 85 per cent of women pass through the change of life without interrupting their daily routine Truly a study of the menopause reaches all the fields of medicine, hence, once the gynæcologist has made his physical examination and excluded any gross pathological lesion, the treatment should devolve on the general physician, who may be fortunate enough to be in charge of his own endocrine clinic at the hospital For here œstrin therapy holds out very real help to the menopausal woman who presents any untoward symptoms, for it should be possible to assure her that she is entering the period of life's greatest contentment Sarah Trent says "Let women understand this neat division in their lives, the years up to 40 for growing, for learning, for marrying and bearing children, the latter years for self expression for herself and for all kinds of social and helpful activities "

It is only recently that œstrin therapy has come into the limelight so much Previously suggestions would be the giving of bromide, with perhaps some thyroid medication in suitable cases in others advice about diet, the management of life generally, and the treatment of obesity by suitable diet and exercise These still figure in the programme, but a suitable dosage of œstrin may be established for three, six, or twelve months, in severe cases taking great care not to reduce this dosage before the patient has been symptom-free, at least two or three months, and then to reduce it only by one-third.

HORMONES

Those specially interested in the prevention of neoplastic formation cannot fail to be apprehensive of the newly spreading and rapidly advancing hormonal suppression of lactation. It has been shown that the incidence of carcinoma mammæ is greater among married women when lactation has failed. Up till recently, if a baby was stillborn, or if a mother failed to nurse her child, the intake of fluid was much reduced, the breasts were very tightly bound up for 14–21 days, and the patient was given copious draughts of saline purges by her maternity nurse—in other words the procedure was not very agreeable, and the unpleasant symptoms at times weighed the balance in favour of continuing with breast-feeding. Not so nowadays—a few injections or a few tablets by the mouth meet with conspicuous and often immediate success in the entire suppression of lactation. But what may this easy way out bring in its train, perhaps in generations to come?

Geoffrey Keynes considers that hormonal control of the breast function is less likely to cause carcinoma, for it presumably stops the flow of milk and thereby avoids the congestion of the breast which follows when the baby is merely taken from it. The carcinoma induced in mice by œstrogen needs a very considerable amount to be given over a very long period, and the female is far less susceptible than the male R. D. Passey feels that, in view of the laboratory experiments, it is not wise to be too dogmatic at this stage E. C Dodds says that, although the injection of massive doses of œstrone into animals over a prolonged period practically from birth increases the incidence of mammary carcinoma in a strain susceptible to this, it does not do so in animals that are not susceptible. When painted for long periods on the skin of mice, œstrogenic hormones do not produce carcinoma and they are therefore not carcinogenic in the sense in which this term is employed by pathologists. According to Dodds the production of mammary carcinoma by œstrogens is probably due to excessive stimulation of the gland by very large doses, and he points out that the physician does not employ doses in any way approaching those required to produce carcinoma of the breast in experimental animals.

Gardiner-Hill advises caution and circumspection in the use of hormones, but says: "Provided that their administration is under careful supervision and dosage controlled, there seems no reason to fear for the future of rational hormonal substitution therapy. . . . It would seem that the safety factor, as far as the use of œstrogens in the human female in ordinary clinical doses is concerned, is well within reasonable limits"

It is at this point important to record that present-day views on the so-called precancerous conditions of the cervix uteri are tending to swing away from implicating chronic cervicitis and chronic erosion, and that much more attention is being directed to the hormonal imbalance and the effects of any dysfunction on local areas, such as the cervix, the corpus uteri, and the mamma. It is interesting to read the present views of Aleck Bourne and L T. Bond, who are coming to the opinion that the part played by infection, especially of the endocervix, in the ætiology of cervical erosion and so-called chronic cervicitis has been greatly over-estimated, and that some other factor must be of major importance. It seems certain that the glands of the cervix, in common with the endometrium, are influenced by ovarian and other hormones and that these must control their activity to a considerable extent, with the result that excessive secretion, and probably hyperplasia of these glands, may occur in the complete absence of infection. This is very important work, for undoubtedly the cervix uteri and its pathology are of prime importance.

STERILITY

On the subject of sterility Hunter wrote:

> "Barrenness proceeds from many causes and is quite inexplicable. . . . We now come to the choice of a wife either for yourself or friend. In choosing a wife consider her parents and family; prolific parents have generally prolific children. Next her good general health—Let her not be subject to have too great or too little an efflux, nor let them be irregular or at times mixed with the whites. . . . A sedentary quiet and regular way of life I believe has a great effect on conception, and that this is the reason why the superior Clergy are blest with such fine troops of children—the dissolute common girls who frequent Covent Garden seldom or never conceive—altho' they have the advantage of all the fine young fellows about Town."

The treatment of sterility has made great strides in the last few years; clinics are being formed in the big cities in the more progressive countries, where the matter is thoroughly investigated from the male and female standpoint, under one roof. The most recent work on the impairment of fertility opens with the sentence "It is no longer necessary to persuade intelligent laymen that the assessment of the fertility of the husband is as important as that of the wife. In increasing numbers they themselves are realising this fact and are not only willing but expect to submit to examination." In fact the four of us who recently have combined in this investigation have all been very surprised and not a little disturbed at the percentage figures of subfertility encountered in the various series of husbands who have been inspected.

Probably the woman of this epoch is faced by a more difficult lot than was any of her forebears; for, though in this country the 15 million women voters outnumber the 13 million men voters, it is still a hard fact that many are unable to marry until after the optimal age of twenty to twenty-five, and that many still do not marry at all and so fail to fulfil their most natural function. Some of those who speak against birth control try to claim that the practice of contraception tends to produce sterility However, so long as intracervical studs or stems or intra-uterine rings are not used, this does not seem to be the case One clinic collected recently a series of 97 women who stopped using contraceptives because they desired another pregnancy, and of these 96 were successful.

It must be remembered that pregnancy depends on the coincidence of intercourse with the fertile phase of the cycle Raymond Pearl concluded that, in a group of healthy white women between the ages of twenty and twenty-four, 30 pregnancies occurred in every 200 ovulations—i e, the fertilisation-rate at any given ovulation is 1 in 7. The practitioner is constantly being asked how long should elapse before a married couple should ask for an investigation of so-called sterility. It may be said that, if one of a possible thirteen ova is not fertilised in any one year, there is probably a lowered fertility in one or both partners.

ARTIFICIAL INSEMINATION

In 1799 John Hunter first used artificial insemination in the treatment of human sterility, in a case of hypospadias in the husband, but for more than a hundred years after this the subject received but little attention Prof W C Miller has stated that in veterinary eugenics hormonic control has reached such a pitch that artificial œstrus may be induced in females at any selected date, with the subsequent development of mature and ripe follicles and of ovulation All this, accompanied by the preservation of spermatozoa in an active state for a considerable period, will enable man to claim that he has achieved almost complete control of the mechanical features of reproduction Russia has been far more interested in artificial insemination in animals than has any other country Indeed the technique and equipment there are so rapidly improving that in a few years their methods are likely to be more and more widely utilised At present this practice in Russia far exceeds anything done in all the European and American countries combined

In man eutelegenesis is the idea of applying artificial insemination to the purpose of positive eugenics Since about 10–15 per cent of all marriages in civilised countries are sterile, this method may, before long, be applicable in certain cases of male sterility, to reduce the number of refractory sterilities, especially where procreation means a great deal to the woman concerned

The proportion of subfertile adults in our population is not known, hence in investigating and assessing a case of a sterile mating a definite routine examination is made of both parties at the same time There have been many classifications of so called sterility, but probably the following is the best and simplest (1) primary low fertility, (2) secondary lowered fertility, and (3) dyskyosis, or incapacity to carry pregnancy to term—in connexion with which an entirely new specific type of sterility is coming to be recognised in which lowered fertility in the male is manifested by spontaneous miscarriage in the female John Rock's experiments on the differences of electrical potential strongly indicate that associated with human ovulation there is a characteristic change in the electrical condition in the pelvis, which has not been observed at other times in these cases or at any time in subjects who have no ripe follicle If this investigation leads to the determination of the exact time of ovulation, it will be a step forward of the utmost importance as regards both contraception and sterility

DIMINISHING FERTILITY

The declining fertility figures cause the gravest concern to all those scientists who are specially interested in the subject, and we feel that it is of the utmost importance for all in this country and the colonies to become eugenically minded Eugenists themselves claim that the general fertility rate is a better measure than the crude birth rate Indeed mathematicians have been enlisted in the cause, bringing forward arguments to prove almost that within a reasonable time the human race will be extinct

In their concentration on this lamentable result of their investigation they do not seem to be aware that at a not very remote period mankind was content with an almost stationary population incomparably smaller than at present, that the later increased rate of human production was abnormal, that the disorder it introduced was further increased by the still continuing conquests of medicine and hygiene in diminishing the death rate, that it became necessary to substitute humane and artificial methods for the natural but cruel methods of restricting the growth of population, and that, in any case, the fall or rise of the birth rate today tells us nothing whatever about the birth rate of tomorrow, even though we know that among the higher biological species and at the higher human cultural levels the birth-rate is always low

The population of the world at the middle of the seventeenth century was about 500 million persons It is now, in three centuries, over 2000 million—more than a fourfold increase—with the most rapid advance during the last hundred years The terrors of over-population are now however giving place to those of under population Sir Farquhar Buzzard has forecast the state control of all marriages within the next 25 years as a necessary measure to preserve the quality of the race, since we are confronted not only with a declining birth rate but also with the prospect of a population in which the unfit would outnumber the fit

Most energy has recently been expended to try to check the declining birth rate in France, Belgium, Italy, and Germany A population policy was begun in Italy in 1926, in Belgium in 1930, and in Germany in 1933 In 1932 in France the payment of family allowances—1–2 per cent of the total wages bill—was made compulsory in many industries The same was done in Belgium in 1928, but in neither country has the birth rate ceased to decline steadily In Italy Mussolini wanted a population of 60 million in 1950 from the present 44 million To this end he gave preference to married men in public service, gave special prizes to mothers of twins or triplets, allowed fathers of eight children to have their children educated free, and taxed bachelors very highly Here are also laws against birth control, and there are marriage and birth premiums

Germany is the only country whose birth rate has risen sharply, from 14 7 per 1000 in 1933 to 18 8 per 1000 in 1937 The principal measures to check the decline in birth rate have been marriage loans, begun in 1933, which are given in the form of tokens that may be exchanged for household requisites, lump sum grants from state funds, and family allowances to check the "flight from the land," the marriage loans being given on specially favourable terms to persons engaged in agriculture or forestry In France, Belgium, and Switzerland there are no birth control clinics France and Belgium are trying to raise their birth rates by a nation wide family allowance system, so far without success It is estimated that, if a similar system were instituted in this country, it would cost around £5,000,000 per annum

The British race all over the world is lowering its birth rate There are no slums in Australia or New Zealand but there has been a considerable fall in the birth rate, as well as in Canada and South Africa The fertility of the British stock in the Dominions has fallen as rapidly as in the mother country

The Nazi leaders originally formulated a theory concerning woman's place in their state They sought to further the reproductive function, to subordinate the work function to an ideal of womanliness, and to provide happiness and security in the home Their inclination is to fit all women into a single mould on the assumption of a universal maternal feeling and unlimited wifely docility But, with silence about birth-control information, the fact that excessive reproduction means quantity not quality, the still deficient reproduction-rate for the maintenance of population, the unfair distribution of the burden of work and of reproduction, and the failure to recognise individual differences between women, all does not move forwards quite as smoothly as was anticipated. In June, 1936, with the German drive for more births, the insurance offices decided that sterility in women was to be regarded as a disease So now what amounts to a census of German breeding stock is taking place at approved eugenic clinics An enormous number of family charts are prepared which include the results of individual examinations made at the clinics. One card is retained by the health office, another goes to the health office at the individual's birth-place, and the third to a huge central archive at the national health office

Undoubtedly there are lessons that may be learnt from the eugenic measures in Germany of the Third Reich They were recently described by Dr. Felix Tietze in a paper to the British Eugenics Society.

STERILISATION

At this point it may be of interest to mention that one of the latest European sterilisation laws is being tried out in Latvia, where a commission is given complete freedom to decide on the suitability of sterilisation, with no specific regulations In Sweden a sterilisation bill came into force in January, 1935, governing only the sterilisation of persons suffering from insanity, feeble-mindedness, or other mental disorders, who by reason of such condition are permanently inhibited from giving a valid consent to this procedure Voluntary sterilisation is outside the scope of this law and is allowed on adequate grounds and is done without legal procedure The surgeon who performs the operation has to report to the ministry of health, and the grounds for sterilisation may be eugenic, medical, or social.

In England the Voluntary Sterilisation Bill which is now before this country permits of the sterilisation of four classes (1) mental defectives; (2) those who have suffered mental disorder in the past; (3) those who have grave physical disability which is likely to be inherited, and (4) those who are deemed likely to transmit a mental defect or grave physical disability to subsequent generations Lord Dawson, who has done so much for this measure, has truly said: "The smaller the birth-rate the more it is necessary to organise selection for quality, if the race is not to deteriorate"

THE PECKHAM HEALTH CENTRE

This centre is already striving along the right lines. When the family joins up, every member is examined both clinically and by routine laboratory tests, and this examination is supplemented by periodic health overhauls and by such special services as premarital consultations and examinations with the giving of advice during pregnancy and the postnatal period The centre considered that a self-supporting organisation would require the enrolment of about 2000 families At this centre the family overhaul begins with the father or with any newborn child, after which other members of the family follow The examinations—three for each person—are an examination in the laboratory along a prescribed schedule, the physical examination by the doctor in the consulting-room, and the "family consultation" between the assembled family and the doctors who have examined any of them

The result of this method of approach is found to be amazingly informative and invaluable to the biologist, covering as it may the whole of family life. Possibly most striking are the benefits from the regime of the "parental consultation," which takes place between both parents and doctor before, during, and after pregnancy and again at the approach of weaning, together with the care of the mother all through the pregnancy, with fortnightly visits to the laboratory and a monthly visit to the doctor-biologist, and a return visit after the confinement, when breast-feeding has been well established

At the centre they consider that already the difference is apparent in those infants born of parents prepared for their pregnancy It seems that whereas all babies tend to show high biochemical values of iron, calcium, &c, at birth, it is common to find a fall of these within the first six months of life In the centre they find that such a fall only occurs where the mother's value was low and was not substituted during pregnancy If this is true they have evidently found a technique for helping to eliminate maternal morbidity, and possibly of modifying, if not breaking, the vicious circle of inheritance of constitution, and so perhaps indirectly of raising the birth-rate

The centre gives each family the chance of eliminating disorders as they arise, so that they shall not slowly undermine the constitution of each person and prematurely use up his vital reserves This is rational scientific medicine in the opinion of those responsible for this most excellent, far-seeing, and unique experiment.

CONCLUSION

I have reviewed various aspects of gynæcology and obstetrics in which advancing knowledge has held out a helping hand to women, I have explored various avenues offering hope in future research, and I have commented on various menaces that threaten us and call for careful scientific scrutiny.

The grim figures of unemployment, the insufficient housing accommodation, the shackles of the deferred-payment system, the effects of taxation, the rising cost of education, though everpresent in their unforgettable reality, seem all comparatively minor in their importance; for the last few months have brought new and far more disturbing deterrents to fertility in their train, in the greatest menace of all, fear. The biologist, the eugenist, and the sociologist try to gaze far into the future, but the immediate present is a great deal more urgent, and surely is the only time for action, if action there can be If this society is in any way a mouthpiece of the medical profession of this country, I do most earnestly emphasise that now is the moment for the doctors, lawyers, and scientists of the world, who in very truth are members of one brotherhood with one common object, to do their utmost to represent to their politicians, their leaders, and the heads of their governments, the abiding truth of the illegality of aerial bombardment of the civilian population of cities.

THE sixth congress of the International Hospital Association will be held in Toronto from Sept 19 to 23 under the presidency of Dr. Malcolm MacEachern, associate director of the American College of Surgeons, Chicago The mornings will be devoted to plenary sessions at which the principal subjects for discussion will be world wide advances in hospital construction; the place of the hospital in the community, and hospital organisation and management At other meetings the reports of the study committees will be presented and discussed The headquarters of the congress will be at the Royal York Hotel, Toronto

A NEUROTROPIC STRAIN OF HUMAN INFLUENZA VIRUS

BY C H STUART HARRIS, M D Lond , M R C P
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(From the National Institute for Medical Research, London)

DURING the five years which have elapsed since the first isolation of human influenza virus most of the evidence about the behaviour of the virus has emphasised its predilection for the respiratory tract Most workers agree that ferrets and mice infected intranasally with influenza virus develop lesions only in the nose and lungs The evidence about the recovery of the virus from the tissues of inoculated animals is at present somewhat conflicting Thus, the work of Smith, Andrewes and Laidlaw with the W S strain of virus soon after its initial isolation resulted in failure to recover virus from any organ other than the nasal turbinates and lungs of infected ferrets and mice (Smith 1936) However, Smorodintseff and Ostrovskaya (1937) claimed that they could recover virus from the blood liver, spleen and urine of mice infected with virus intranasally, and Cerruti (1937) recovered virus from the liver, spleen, and brain of mice after intranasal infection Although Cerruti worked with a strain of W S virus which had been passaged many times in ferrets and in mice and had undergone a considerable increase in virulence for mice (Andrewes and Smith 1937), Smorodintseff obtained his results both with the virulent W S virus and with the Leningrad strain, which had been isolated only a short time previously

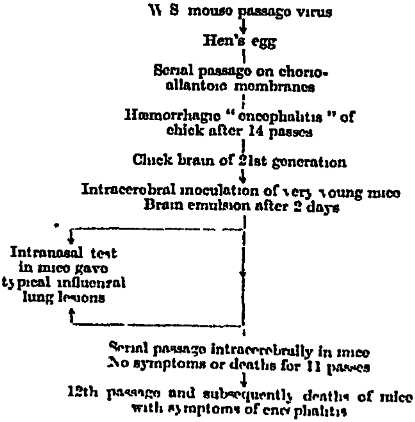
More recent attempts in the laboratory of the National Institute for Medical Research to isolate virus from the organs of mice infected intranasally with the virulent W S virus have resulted in the recovery of virus from the spleens of moribund mice but not from the heart s blood, liver or urine The brains were not tested in these experiments, and the results with the spleens suggested that the occurrence of virus in organs other than the respiratory tract might be a terminal phenomenon Attempts to infect animals by routes other than by direct inoculation of the respiratory tract have given results suggesting that the virus does not survive easily in tissues outside the respiratory organs Thus, Smith, Andrewes and Laidlaw (1935) reported that they were unable to infect ferrets by subcutaneous, intramuscular, intraperitoneal, intratesticular or intracerebral routes, and their work with the W S virus soon after its transference to mice suggested a similar lack of infectivity of the virus for mouse tissues other than those of the respiratory tract (Smith 1936) In particular they failed to find evidence of survival of the W S virus for even two days after its introduction into the mouse brain by direct inoculation

Recently Daddi and Panà (1937) and Cerruti and di Aichelburg (1937) have suggested that the rabbit can be infected intracerebrally by the direct inoculation of lung filtrate from mice infected with the virulent W S virus Daddi described a meningo encephalitis in rabbits thus inoculated, and Cerruti, although unable to find any signs of illness in the inoculated rabbits, stated that he had passaged the W S virus for three generations in rabbits' brains and had recovered the virus by inoculating the brain emulsion intranasally into mice None of these authors reported any attempt to infect mice by the intracerebral route, however, and there has been, therefore, to date, no evidence that human influenza virus can multiply in the nervous system of the mouse even after direct inoculation A single attempt to infect mice intracerebrally with the mouse lung-adapted W S virus was made recently in this laboratory Virus was demonstrated in the brains of mice two days after the intracerebral inoculation of mouse-lung filtrate, and at the same time two passes in series from brain to brain were carried out The brain emulsion from the third generation of intracerebrally inoculated mice failed to produce any lesions in the lungs of mice after intranasal inoculation , hence no evidence of multiplication of the virus in the mouse brain could be obtained Recently also Dr Wilson Smith, in a single experiment, was unable to demonstrate any surviving virus in the brain of a rabbit which had been inoculated intracerebrally with virulent mouse filtrate (strain W S) three days previously

The best evidence that the virus can attack nervous tissue has been furnished by Burnet In 1936 Burnet reported that, after cultivation of the Melbourne strain of human influenza virus for sixty-three generations on the developing hen's egg, the chick embryo died and the brain of the embryo showed a peculiar hæmorrhagic condition Burnet found virus in the affected brain but concluded that most of it was associated with the blood-cells, from which it could be recovered in abundance In 1938 Burnet and Lush reported that the virulent mouse W S virus also produced hæmorrhagic encephalitis in chick embryos after only twenty six passages on the chorio-allantoic membrane, the picture being identical with that produced by the Melbourne virus

The present paper describes the development of a strain of the W S virus which can multiply in the brain of the mouse after direct intracerebral inoculation

DIAGRAM SHOWING THE HISTORY OF THE DEVELOPMENT OF THE NEUROTROPIC STRAIN OF THE W.S VIRUS


W S mouse passage virus
Hen's egg
Serial passage on chorio-allantoic membranes
Hæmorrhagic " encephalitis " of chick after 14 passes
Chick brain of 21st generation
Intracerebral inoculation of very young mice
Brain emulsion after 2 days
Intranasal test in mice gave typical influenzal lung lesions
Serial passage intracerebrally in mice
No symptoms or deaths for 11 passes
12th passage and subsequently deaths of mice with symptoms of encephalitis

HISTORY OF THE NEUROTROPIC STRAIN

The diagram given above shows the history of the development of this neurotropic strain of the W S virus The material used for the initial inoculation of the egg membrane was a filtrate of infected mouse lungs through a collodion membrane of average pore diameter 0·71 μ (Elford 1931) The virus had previously been passed 166 times through ferrets and then 196 times through mice Serial passage on the hen's egg was carried out every two or three days, the chorio-allantoic membrane being used each time as the source of virus (technique of Burnet 1936b). No lesions were detected on the membrane for the first five passages, but thereafter fine flaky opacities and thickening of the membrane appeared constantly After fourteen passages deaths of the embryos were observed, and some of the dead embryos showed the typical picture of hæmorrhagic encephalitis described by Burnet (1936a) This picture recurred in subsequent passages although not in every embryo, and a titration of an emulsion of the whole embryo by intranasal inoculation into mice showed that the embryo contained as much virus as did the chorio-allantoic membrane Both, however, yielded virus of a somewhat lower infective titre for mice than the original mouse W S. virus The latter was regularly infective at a dilution of $1/10^6$ of a filtrate of a 5 per cent emulsion of mouse lungs, but the egg membrane was only infective up to a dilution of $1/10^4$ or $1/10^5$ of the 10 per cent. emulsion The brain of a dead chick embryo of the twenty-first generation of the serial passage was removed and emulsified in 5 c cm. of broth mixed with an equal part of normal saline, and 0·02 c cm. was inoculated intracerebrally under ether anæsthesia into each of a group of three very young mice 10–12 g in weight. The mice did not become sick; they were killed on the second day after inoculation, and their brains were removed and emulsified in broth-saline mixture to a concentration of 10 per cent by weight; the emulsion was inoculated into two groups of slightly older mice 12–14 g. in weight Mice of one group received an inoculation of 0·05 c cm each intranasally under ether anæsthesia; the mice were killed after five days, and their lungs were examined for lesions Mice of the other group were each inoculated intracerebrally with 0·02 c cm; some were killed after two days, and brain emulsions were prepared and used for inoculation both intranasally and intracerebrally into further groups of mice In this way continual intracerebral mouse passage every two or three days was carried out, and the presence of influenza virus in the brains was tested for by intranasal inoculation. Survival of the influenza virus in the mouse brain of each passage was proved by the fact that the lungs of the mice inoculated intranasally with the brain emulsions showed lesions typical of influenza

No symptoms suggesting virus infection were observed in the mice infected intracerebrally until the twelfth passage, when deaths occurred on the fifth, sixth and seventh days after inoculation, and signs of illness were observed shortly before death Thereafter signs of illness and deaths occurred regularly, and few mice survived after receiving the full-strength 10 per cent brain emulsion of the previous passage Thirty-four passages have now been accomplished, and the picture in the inoculated mice is consistent. The clinical picture which has been observed in these intracerebrally infected mice comprises first a ruffling of the fur, then either excitement or else depression with hunching of the back and lethargy. Eventually, owing to increasing weakness and ataxia, the mice lie helpless on back or side, and, although occasional clawing movements of the hind legs have been seen, convulsions have only occurred as a terminal event, and true paralysis has not been observed. Occasional mice have exhibited rolling movements as in the rolling disease of mice described recently by Findlay *et al* (1938), but this sign has not been constant Death has been most usual on the fifth or sixth day after inoculation, and at autopsy the only abnormalities seen have been in the brain. When the skin has been removed from the vault of the skull, a hæmorrhagic appearance is obvious, and the brain shows a fine congestion of the vessels of the pia arachnoid Histological preparations of the brains, examined with the kind help of Dr. Perdrau, have revealed a congestion of vessels without perivascular cuffing, a mononuclear cell infiltration of the meninges, and changes in the neurones, particularly of Ammon's horn A polymorphonuclear cell reaction is seen along the track of the needle used for inoculation The changes in the neurones consist of an enlargement of the nucleoli, which stain deeply with acid dyes, a breaking up of the remaining chromatin of the nucleus, and a fine acidophilic granularity throughout the whole nucleus These changes, which are most obvious in preparations stained with Mann's stain, resemble those described by Burnet (1936a) in the ectodermal cells of the chorio allantois infected with the Melbourne virus

TABLE I—SERUM NEUTRALISATION EXPERIMENTS IN MICE

—	Tested intranasally*	Tested intracerebrally†
IH_2 serum (horse)— Brain emulsion alone	(lung lesions on 4th day) 2+ 2+ 2+ 3+ 3+ 3+	D_3 D_4 D_5 D_6 D_6 D_6
„ „ and serum	0 0 0 0 0 0	D_5 D_8 D_9 S_{28} S_{28} S_{28}
Convalescent ferret serum (W S)— Brain filtrate and saline	(lung lesions on 5th day) 2+ 2+ 2+	D_6 D_6 D_7
„ „ serum 1 : 2 (final dilution)	0 0 0	S_{28} S_{28} S_{28}
„ „ „ 1 : 10 „ „	0 0 0	S_{28} S_{28} S_{28}
„ „ „ 1 : 50 „ „	Nsp 0 Nsp	S_{28} S_{28} S_{28}
Convalescent ferret serum (W.S)— Brain emulsion and saline	4+ 3+ 3+	—
„ „ serum 1 : 10 (final dilution)	Nsp 0 0	—
„ „ „ 1 : 50 („ „)	0 0 0	—
„ „ „ 1 : 250 („ „)	0 0 1+	—

* Figures represent the relative size of the lung lesion · 0 = no lesions, 1 + = small lung lesion, 2 +, 3 + = larger lung lesions, 4 + = complete hepatisation of lungs Nsp = non-specific death of mouse

† D indicates death of mouse, the accompanying number being the number of days after inoculation when death occurred S_{28} indicates survival for 28 days after inoculation

PROOFS OF THE PERSISTENCE OF THE INFLUENZA VIRUS

Four proofs have been obtained that influenza virus is still present in the brains of the mice after many intracerebral passages

(1) Intranasal inoculation of mice under ether anæsthesia with brain emulsions from the serial passages has regularly produced *lung* lesions typical f influenza virus The intranasally inoculated mice ave usually been sacrificed on the fifth day after noculation, and those mice receiving brain emulsions rom the earlier intracerebral passages showed only mall lung lesions when killed More extensive lung esions, or else complete hepatisation of the lungs ith death before the *fifth day, occurred* in mice eceiving intranasally brain emulsions from the eventh and subsequent intracerebral passages.

TABLE II—INTRANASAL IMMUNITY TEST OF SURVIVORS FROM INTRACEREBRAL W S

Generation of mouse passage (intra cerebral)	Symptoms after intra cerebral inocula tion	Sur-vivors	Inter val in days	Result of intranasal test with ordinary mouse strain of W S *
				(lung filtrate 1/100)
5th	None	3	22	D_5 D_6 D_7
7th	„	2	17	D_5 D_7
10th	„	3	8	D_4 D_5 D_5
				(lung filtrate 1/10)
12th	Yes	4	30	D_5 So So So
14th	„	1	27	D_4
15th	„	4	23	S+ So S+ So
16th	„	2	31	So So

* D indicates death of mouse from complete hepatisation of ngs, the number following indicates the day on which death curred after intranasal inoculation

So = Survival 10 days with absence of lung lesions when killed

S+ = Survival 10 days with *small lung lesion when killed*

(2) The virus present in the brain has been success-ully neutralised by mixing brain emulsions and iltrates with anti influenzal sera and inoculating roups of mice intranasally and intracerebrally with the mixture Table I shows the results of three neutralisation experiments with an immune anti-influenzal horse serum IH_2 (Laidlaw, Smith, Andrewes and Dunkin 1935) or serum from a ferret convalescent after infection with the ordinary mouse strain of W S virus The horse serum protected the lungs completely when tested intranasally and saved the lives of three of the six mice tested intracerebrally The ferret serum neutralised the brain emulsion completely, *as judged by intranasal tests up to a* final dilution of at least 1/50 (its titre against a filtrate of mouse lungs of the ordinary W S strain was 1/250) The ferret serum saved the lives of all the mice receiving a mixture of brain filtrate and serum 1 in 10 and 1 in 50 although some of the mice showed signs of cerebral irritation

(3) Mice surviving intracerebral infection with the neurotropic *strain of* W S after showing *symptoms* are immune to a subsequent inoculation intranasally with the ordinary W S virus Table II shows that, although eight survivors from the early brain passages which had not shown symptoms were completely susceptible when tested intranasally, nine out of eleven mice from the later passages which did show symptoms were immune and showed either small or no lung lesions when killed ten days after the intranasal immunity test

(4) Of two ferrets inoculated intranasally with mouse brain emulsions, one inoculated with emulsion kept for forty-eight hours at 0° C showed no subsequent illness, but the other, inoculated with fresh emulsion from the twenty-fifth intracerebral passage, developed nasal symptoms and fever typical of influenza after an incubation period of forty-eight hours

There seems no doubt, therefore, that influenza virus is present in the mouse brain after many serial passages and must therefore be multiplying abundantly, but proof that this virus causes the signs of illness and death of the mice is still not conclusive Mice are subject to various spontaneous nervous diseases, such as lymphocytic choriomeningitis (Traub 1936), encephalomyelitis (Theiler 1937) and rolling disease (Findlay et al 1938), and an extraneous mouse organism might therefore have been picked up during the repeated brain passages Although the clinical picture and brain histology did not suggest any of these diseases, attempts have been made to exclude them as far as possible In the first place, smears of infected mouse brain have been stained and examined and cultivation of brain emulsion on various media has been attempted, but always with negative results Then an immune rabbit antichoriomeningitis serum was obtained by the courtesy of Dr Findlay, and mixtures of this serum with brain emulsion after standing at room temperature for 1½ hours were inoculated into groups of mice both intranasally and intracerebrally The intranasally inoculated mice all developed lung lesions typical of influenza, and the intracerebrally inoculated mice all died with symptoms typical of the disease induced by brain emulsions alone Again, some brain emulsion was filtered through successive collodion membranes of average pore diameter 0 06 μ and 0 3 μ The final filtrate produced typical influenzal lung lesions in four out of six mice inoculated intranasally and killed three out of six mice inoculated intracerebrally Thus, although the potency of the virus was reduced by filtration through the tight membrane, it was not abolished, hence the agent causing the rolling disease of mice which will not pass through such a membrane (Findlay et al 1938) is unlikely to have been responsible for the condition described Finally, the virus of spontaneous mouse encephalomyelitis causes a flaccid paralysis of the hind legs of mice (Theiler 1937), and such paralysis has never been observed in any of the present mice

SUMMARY

The history of the development of a variant of the W S strain of human influenza virus which is neurotropic for mice is described No evidence has been obtained that any other mouse pathogenic organism is associated with the neurotropic influenza virus

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COLLOIDAL ALUMINIUM HYDROXIDE IN THE TREATMENT OF PEPTIC ULCER

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Aluminium hydroxide has been used for the treatment of peptic ulcer, particularly in America, by a number of workers during recent years. The original paper of Roch (1922) has been followed by communications from Crohn (1929), Einsel and others (1930, 1932), Woldman and Rowland (1936, 1937), and O'Brien (1938). All these have given favourable opinions concerning the value of this substance, and the chief claim made for it is that, when administered in the form of aluminium hydroxide gel, it differs from alkalis in that, owing to its amphoteric qualities, it will neutralise hydrochloric acid in considerable quantities without becoming basic; it is claimed that this substance combines with hydrochloric acid to form aluminium chloride, and that, however much of it is given, an alkaline reaction cannot be produced; in the small intestine the biliary and pancreatic juices react with it to re-form sodium chloride and reprecipitate aluminium hydroxide. It is therefore claimed that colloidal aluminium hydroxide can act as an efficient neutraliser of gastric acidity, and that it is incapable of producing alkalosis.

We have carried out a preliminary investigation of this substance with a view to answering the following questions: (1) Can aluminium hydroxide gel be shown effectively to neutralise the gastric contents? (2) Is it an effective substance in the clinical treatment of peptic ulcer? (3) Is there justification for the claim that it cannot produce alkalosis?

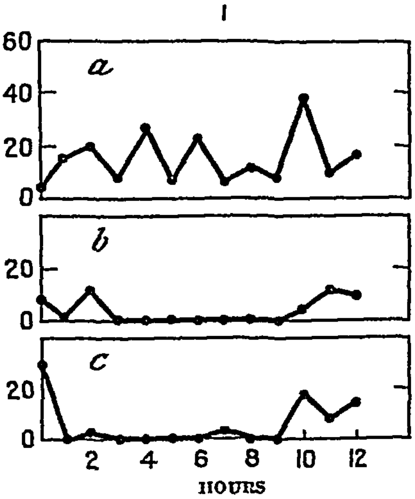
DEMONSTRABLE EFFECTS ON GASTRIC SECRETION

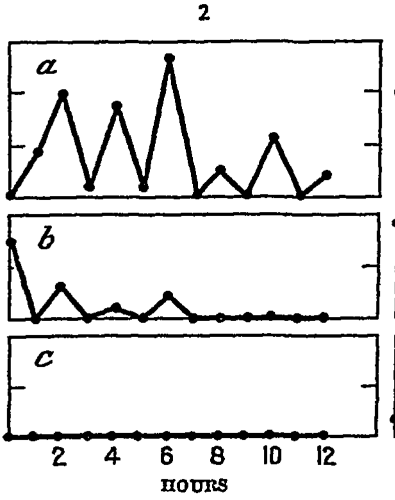
To obtain information concerning the effect of aluminium hydroxide on gastric acidity under normal conditions we have examined specimens of the gastric contents in four cases of peptic ulcer. The results are shown in figs. 1–4, the following being the details concerning the four cases.

Case 1.—Male, aged 39, with chronic gastric ulcer troubling him since 1923 and a history of several hæmorrhages. Fractional test-meal showed very high acidity. When he was fed through a stomach tube with 10 oz. of milk at two-hourly intervals, there was a constant moderate amount of free hydrochloric acid in the stomach (fig. 1*a*). When 3 drachms of aluminium hydroxide was given one hour after each of such feeds, the free hydrochloric acid was practically abolished (fig. 1*b*). When the aluminium hydroxide was reduced to 1 drachm one hour after each feed, the neutralisation remained excellent (fig. 1*c*).

Case 2.—Male, aged 49, with severe hæmorrhage from duodenal ulcer in 1935. Ulcer still present on radiography. Fractional test-meal showed low acidity. When he was treated by two-hourly feeds of 10 oz. of milk given by mouth, there was almost constant free hydrochloric acid in the stomach, reaching a high level (fig. 2*a*). When 1 drachm of aluminium hydroxide was given by mouth one hour after each of such feeds there was a very fair neutralisation, which became complete in the late hours of the day (fig. 2*b*). When the aluminium hydroxide was increased to 3 drachms between feeds, there was complete achlorhydria throughout the period of feeding (fig. 2*c*).

Case 3.—Male, aged 26, with twelve years' history of duodenal ulcer confirmed by radiography. Fractional test-meal showed considerable secretion of free hydrochloric acid of "climbing" type. On two-hourly feeds of 10 oz. of milk there was a high level of free hydrochloric acid throughout the day (fig. 3*a*). When 1 drachm of aluminium hydroxide





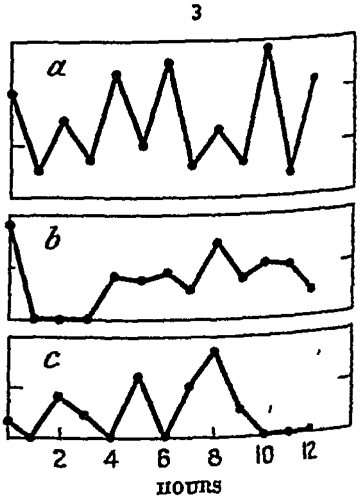


Fig. 1.—Graphs of gastric acidity in case 1: (*a*) on two-hourly feeds of 10 oz. of milk; (*b*) on same diet plus 3 drachms of aluminium hydroxide an hour after food; (*c*) on same diet plus 1 drachm of aluminium hydroxide an hour after food.

Fig. 2.—Graphs of gastric acidity in case 2: (*a*) on two-hourly feeds of 10 oz. of milk; (*b*) on same diet plus 1 drachm of aluminium hydroxide an hour after food; (*c*) on same diet plus 3 drachms of aluminium hydroxide an hour after food.

Fig. 3.—Graphs of gastric acidity in case 3: (*a*) on two-hourly feeds of 10 oz. of milk; (*b*) on same diet plus 1 drachm of aluminium hydroxide an hour after food; (*c*) on same diet plus 1 drachm of alkaline powder (1 part of heavy magnesia, 2 parts of light magnesia, and 3 parts of chalk) an hour after food.

was given by mouth an hour after each of such feeds this acidity was somewhat reduced (fig 3*b*) When 1 drachm of alkaline powder containing one part of heavy magnesia, two parts of light magnesia, and three parts of chalk, was substituted for the aluminium hydroxide, the neutralisation was somewhat more effective but not very much so, there still being considerable amounts of free hydrochloric acid present during the greater part of the day (fig 3*c*)

CASE 4 —Male, aged 30, with one year's history of duodenal ulcer, confirmed by radiography Fractional test-meal showed "climbing" type of curve, on 10 oz of milk two-hourly there was considerable secretion of free hydrochloric acid, becoming less in the latter half of the day (fig 4*a*) Aluminium hydroxide 1 drachm one hour after each feed produced a considerable reduction in acidity (fig 4*b*), and 3 drachms given one hour after each feed produced almost complete neutralisation (fig 4*c*) A similar effect was obtained with an alkaline powder constituted as for case 3 (fig 4*d*)

We believe that these charts effectually demonstrate that aluminium hydroxide possesses, in doses of 1–3 drachms, neutralising powers as great as those of ordinary doses of alkaline powder

CLINICAL RESULTS

We are of opinion that it is not justifiable at the present date to endeavour to treat a case of peptic ulcer by any medicinal substance with neglect of diet, and, since many cases show great clinical improvement when treated by diet alone, it is difficult to assess the relative value of various alkalis We have, however, treated some thirty outpatients, of both sexes, between 20 and 72 years old and suffering from gastric, duodenal, or anastomotic ulcers, the duration of history varying from three months to forty years In all these cases the diagnosis had been confirmed radiologically, all were placed on small frequent soft or fluid feeds with an alkaline powder taken one hour after each feed After various periods of time each was asked to substitute aluminium hydroxide gel for the powder and to note any differences In all save two cases the patients expressed a preference for the gel, nearly all were completely free from pain while taking this preparation, but in five cases there appeared to be no relief, in general the clinical impression was that the benefit was fully equal to what was derived from the alkaline powder Apart from this impression, it was certain that diarrhœa, which is often very troublesome in patients under treatment with alkalis, was absent in every case except one Five patients noted slight constipation, which was easily counteracted with liquid paraffin

ALUMINIUM HYDROXIDE AND ALKALOSIS

The most important claim made for aluminium hydroxide is that it cannot produce alkalosis We have made a series of careful observations on this point

(1) In several patients we have observed the alkali reserve both after full doses of alkaline powder and after full doses of aluminium hydroxide without noting any change in the alkali reserve In others there has been a slight rise in the alkali reserve after several days of alkali but none after aluminium hydroxide even when given in amounts as great as 3–4 oz in the twenty four hours

(2) In a patient with a severe chronic duodenal ulcer in whom treatment with alkali has frequently been interrupted owing to the development of alkalosis the alkali reserve was unaffected by 1 oz of aluminium hydroxide daily for a week When this amount was doubled, a slight rise in the alkali reserve (from 52 to 65) was observed, but no symptoms of alkalosis were produced such as had frequently been seen when the patient was previously treated with magnesium hydroxide

(3) In a patient with renal failure, in whom the urea clearance was 19 per cent of normal, the administration of aluminium hydroxide 2 oz daily for four days produced no increase in the alkali reserve

Our inquiry, admittedly limited in extent, therefore suggests that the claim that aluminium hydroxide does not produce alkalosis is justified.

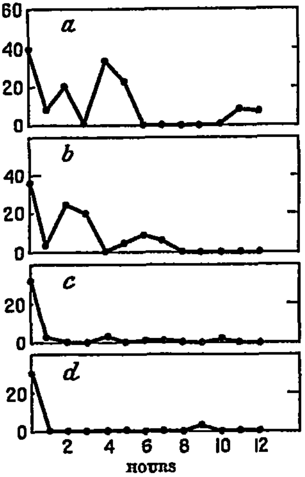


FIG 4—Graphs of gastric acidity in case 4 (*a*) on two hourly feeds of 10 oz of milk, (*b*) on same diet plus 1 drachm of aluminium hydroxide an hour after food, (*c*) on same diet plus 3 drachms of aluminium hydroxide an hour after food, (*d*) on same diet plus alkaline powder (same composition as in case 3) an hour after food

SUMMARY

Observations on a number of patients indicate that aluminium hydroxide gel is an effective substance for neutralising the gastric contents, that it is a valuable adjuvant in the treatment of peptic ulcer, and that it is not liable to cause alkalosis

We would express our thanks to Prof E C Dodds, the chemical observations in this paper having been carried out in the Courtauld Institute of Biochemistry, Middlesex Hospital

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CONFERENCE OF WORKERS FOR CRIPPLES —The fourth World Conference of Workers for Cripples will be held at Bedford College for Women, London, from July 16 to 22 The conference will be officially opened on Monday afternoon, July 17, by Mr Walter Elliot The principal subjects for discussion will be preventive orthopædics in childhood (which will be opened by Mr R C Elmslie), the education vocational training and subsequent employment of the cripple and the industrial cripple Further information may be had from the organising secretary, 34, Eccleston Square, S W 1

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CLINICAL ADMINISTRATION OF ANDROGENS

A COMPARISON OF VARIOUS METHODS

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Following the restoration of sexual function in a male castrate of 38 by injections of testosterone propionate (Foss 1937) I have taken advantage of the keen coöperation of this patient to compare the effects of a variety of androgens by injection, by mouth and by inunction.

On Oct. 29 and 30, 1937, the man received a total of 70 mg. of testosterone propionate by injection. Urine samples were collected for the next three days and these were sent to Dr R K. Callow at the National Institute for Medical Research for estimation of œstrogen and androgen The results are shown in fig 1 It was found that the excretion of androgen was 160 international units per day, and Dr Callow calculated (see Callow 1938) that the extra androgen excreted in the urine in the first two days was 16 per cent of the total dose given in terms of biological activity. This figure is much higher than is obtained in cases of prostatic enlargement treated with 50 mg per week when 1–6 per cent of the androgenic activity is excreted After 58 days free from treatment a further estimation showed that the excretion of androgen had fallen to 34 I U. per day. The administration of testosterone propionate also increased the excretion of œstrogen in the urine, whereas this was negligible after the period of rest

Unfortunately estimations of urinary androgen were not carried out before any therapy was given, though it is doubtful whether the resting estimation was effected by the last subcutaneous injection of testosterone propionate I feel sure that all this must have been excreted 58 days after the last injections, for even after subcutaneous implantation of solid tablets of testosterone weighing 50 mg absorption is complete in about 2½ months The androgen excreted during the resting period is almost certainly of suprarenal origin, and the potency which has been recorded in some eunuchs may also be due to a sufficiency of male hormone from this source The androgen excretion is no indication of the physical state of the individual, and in this case the effect of withdrawing therapy was very obvious Seven days after the injections were stopped the man was quite impotent, and in six weeks he lost 10 lb in weight

On Jan 10, 1938, the administration of androgen was recommenced, and the succession of preparations given, with the intervening resting periods, are indicated in fig 2 Throughout the experiment the eunuch was unaware of what he was being given whether by mouth, by injection or by inunction, though after the preliminary success he naturally assumed that the object of these substances was to restore lost function That the success of the measures was due to suggestion can be denied, for whenever plain sesame oil was injected or the dose of male hormone was reduced, potency was either absent or deficient I have tried to evaluate the lowest dose of each androgen which maintained normal sexual function.

It is apparent from this experiment that glandular extracts even when given in doses far in excess of the maximum suggested, are useless by mouth, a fact which bears out what Dodds (1938) has said as to the inactivity of all desiccated protein preparations of organs, except that of the thyroid Injections of hydrosoluble and liposoluble elements of the testicle appear to have very little action even in large doses, and tend to upset patients Investigation of the potency of another total testicular extract by injection (Erugon, Bayer) showed that even after six times the suggested dose, very slight potency was produced This total quantity only represented about 60 comb-growth units (c g u) per week, whereas a dose of 40 mg of testosterone propionate effected normal potency and was equivalent to 2000 c g u The equivalent dose of androstanediol was 800 c g u per week If the patient could have tolerated still larger volumes of erugon in oil or a more concentrated solution had been available, some idea of the dose necessary to produce normal potency might have been obtained The obvious advantage in favour of testosterone propionate, however, is that a definite weight-dosage can be prescribed and reliance need not be placed on standardisation based on capon or rat assays.

When testosterone was used in conjunction with small doses of œstradiol benzoate some increased efficiency was obtained, for a slightly lower threshold value of male hormone was active and emission was noted for the first time As androgen therapy in one form or other was continued, the volume of these emissions increased. With only medium doses, such as 40 mg per week, full erection

RESULTS

TESTOSTERONE PROPIONATE—	
By injection ..	40 mg per week preferably in two divided doses = moderate potency. 60–100 mg per week = full potency and possibly priapism if continued
By inunction of ointment.	As well as can be estimated 120–140 mg per week or three applications of about 25-30 mg per week = normal potency for about four days
By inunction of tincture	40 mg per day (280 mg. per week) =normal potency.
TESTOSTERONE—	
By inunction of tincture.	20 mg per day = moderate potency. 40 mg per day (280 mg per week) = normal potency
By mouth .	Doses up to 30 mg per day = no effect 100 mg per day = slight potency.
PROGESTERONE—	
By injection ..	40–60 mg per week in divided doses = moderate potency but effect not so lasting Later 150 mg. per week = little effect. In conjunction with testosterone propionate prolongs effective duration
ANDROSTANEDIOL—	
By injection ..	400–800 comb-growth units per week at two-day intervals = moderate potency
TOTAL TESTICULAR EXTRACT—	
By mouth ..	"Androstin" = no practical effect
By injection and by mouth	"Androstin" = very slight potency
By injection ..	"Erugon" in doses of 6 c cm per day = very slight potency.
SESAME OIL—	
By injection ..	Impotence.
BLAND OINTMENT BASE—	
By inunction ..	Impotence

was not possible, but when 100 mg of testosterone propionate was given in a week in conjunction with small doses of œstradiol benzoate, erection was fully turgid Progesterone enhanced the action of the male hormone also and one injection lasted nearly six days, whilst even progesterone alone in sufficient dose maintained potency, but the effect was not so prolonged. More recently I have given larger doses of progesterone, 25 mg daily, but with little effect

A urine fraction thought to contain mostly androstanediol was found to sustain the man's potency and 400–800 c g u was equivalent to about 40 mg per week of testosterone propionate Here again 800 c g u of androstanediol is apparently equivalent to 2000 c g u of testosterone propionate

It seems that a rather larger dose is necessary to produce full potency by percutaneous application of ointment, a method which is nevertheless a great advance in therapy and one that is readily appreciated by the patient Alcoholic tinctures containing testosterone were also effective when given per cutaneously, but three or more times as much hormone was required in the alcoholic vehicle than in the ointment base This may only be a question of insufficient inunction (Foss 1938) A comparison of alcoholic solutions containing testosterone and testosterone propionate in varying concentrations is extremely difficult but these clinical trials tend to favour the pure hormone when applied in this form, which bears out the experimental work of Moore, Lamar, and Beck (1938) using a cream vehicle At the time when these tests were made it had not been possible to prepare an ointment in a fatty base containing testosterone in a concentration higher than 5 mg per gramme, and this strength was insufficient to allow a comparison to be made between the efficiency of testosterone and its ester in ointment form Now that a testosterone ointment containing 20 mg per gramme is available comparison will be possible, though from the practical clinical standpoint even though testosterone propionate may be less potent, it has still the advantage of more ready solubility in a fatty base

During the period of a year in which, except for minor intervals of rest, different androgens have been applied continuously, the growth of hair on the man's body and limbs has increased noticeably and he has now a normal moderate distribution of hair on the legs and thighs The pubic hair is thicker and beginning to extend up the abdomen, where some hairs are now an inch long The beard has also become more bristly and he has now to shave every day

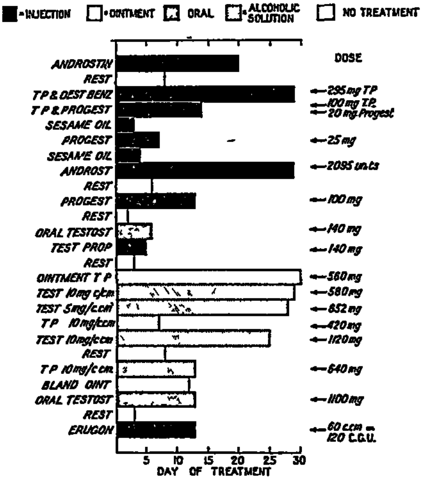

FIG 2—Method of administration, dosage, and duration of treatment with various androgens T P = testosterone propionate Test = testosterone C G U = comb growth units

In this patient it is possible to estimate the ratio of the effective dosage of testosterone and testosterone propionate by different routes Based on the initial finding that 40 mg per week was the minimum dose productive of moderate potency the ratios were as follows —

Subcutaneous to skin inunction of ointment	1 2–3
„ „ inunction of tincture	1 6
„ „ oral	1 20

These ratios must be taken as very approximate because they are founded only on observations of one isolated case, but they provide a basis for further clinical observation

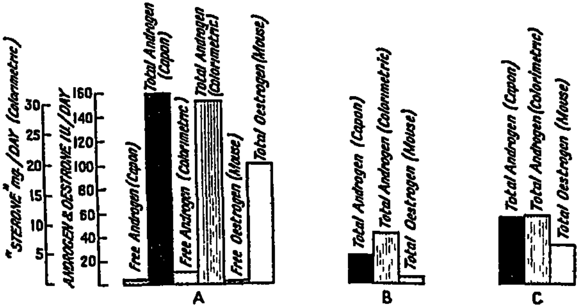

FIG 1—Results of colorimetric and biological assays of androgen and œstrogen in the urine of the eunuch A, average of three days following 70 mg of testosterone propionate, B, after 58 days without treatment, C, figures per litre for mixed male urine extracted by the same method

SUMMARY

A comparison has been made of the efficiency of various preparations of androgens given by different routes in maintaining sexual function in a male post puberal eunuch

The preparations were given in succession with short free intervals over a period of a year, and bland ointment and injections of sesame oil were given as controls

The minimum effective dose of testosterone propionate when given by subcutaneous injection was 40 mg per week. To obtain an equivalent effect it was found necessary to give

2–3 times this dose rubbed in as ointment, 6 times the dose rubbed in as tincture or 20 times the dose by mouth.

Progesterone was found to prolong the action of testosterone propionate when given in conjunction with it

Total testicular extracts had little effect when given by injection and none by mouth.

I am indebted to Dr R. K. Callow for making quantitative estimations of androgen and œstrogen in the urine, to Mr C. W. Emmens for estimating gonadotrophic excretion, and to Prof. T B. Davie and Dr A. D. Fraser for examining ejaculate.

I am also indebted to Messrs Schering for samples of testosterone propionate, œstradiol benzoate and progesterone in oil, testosterone propionate and testosterone in alcoholic solution and in crystalline form, and testosterone tablets for oral use; to Organon Laboratories for testosterone and testosterone propionate crystals, ointments of testosterone and testosterone propionate, bland base, and androstanediol in oil; to Messrs Ciba for androstin and testosterone propionate in oil; and to Bayer Products Ltd. for erugon.

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UTERINE HÆMORRHAGE

INDUCED BY ORAL ADMINISTRATION OF PREGNENINONOL

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AND

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AS recently reported, we have successfully used progesterone to initiate uterine hæmorrhage in normally menstruating women during the intermenstrual stage (Zondek and Rozin 1938). We induced this intracyclic hæmorrhage by intramuscular injection of 10 mg of progesterone daily for five days, beginning shortly after menstruation We were also able to demonstrate that in secondary amenorrhœa bleeding could be induced, with the same total dose (50 mg. progesterone), without preliminary treatment with œstrogenic hormone. If in secondary amenorrhœa an œstrogen is first given, followed by progesterone, the hæmorrhage comes from a progestationally transformed mucous membrane, whereas in our cases it came from a proliferative mucosa. For the patient however the difference is immaterial. When progesterone was given by itself we observed that the breasts enlarged before the onset of the hæmorrhage and that signs of ovarian deficiency disappeared as soon as the bleeding began

In primary amenorrhœa progesterone therapy is a failure, and this reveals a characteristic difference between primary and secondary amenorrhœa

Œstrogenic hormone is effective when given by mouth, though its efficiency is only a fifth of that observed from parenteral administration (Zondek 1929) Oral administration of progesterone on the other hand is ineffective Inhoffen and Hohlweg (1938) however have lately reported that their new preparation pregneninonol has a progesterone like effect in animals when taken per os Clauberg and Üstün (1938) have demonstrated that this is true of man too, and we have accordingly studied the question whether it is possible to induce uterine bleeding with the help of this preparation (1) in normally menstruating women during the intermenstrual stage, and (2) in secondary amenorrhœa, without preliminary treatment with œstrogenic hormone.

CASE 1.—A woman aged 23, with normal periods lasting six days; she had had a child three years previously. From the 7th to the 11th day of the cycle she received daily 60 mg. of pregneninonol per os, a total therefore of 300 mg. After an interval of sixty hours, on the 14th day of the cycle, a hæmorrhage set in which persisted for three days. Two hours after the onset of the bleeding a strip of the uterine mucosa was removed, and histological examination showed a mucous membrane of the beginning of the intermenstrual stage. Like menstrual blood the blood discharged from the uterus did not coagulate.

Thus in this case the effect of pregneninonol taken by mouth proved similar to the effect of progesterone given by injection: sixty hours after hormone administration was discontinued an intracyclic hæmorrhage took place

CASE 2.—Woman aged 20. Menstruation had been formerly normal, but since her confinement (normal) two years previously she had had amenorrhœa. The uterus (7 cm long) was retroverted. She received per os 60 mg. of pregneninonol daily for five days, and as in the last case hæmorrhage set in after sixty hours and persisted for three days. Ten hours after the onset of the bleeding a strip of the uterine mucosa was removed and examination showed that the glands were wide, in some places tortuous, more or less corresponding to the 17th day of the cycle The blood discharged from the uterus did not coagulate.

In this case of secondary amenorrhœa, therefore, we succeeded in inducing bleeding by oral administration of 300 mg of pregneninonol in exactly the same way as we previously induced it in secondary amenorrhœa by intramuscular administration of 50 mg. of progesterone

In a third patient, a woman aged 40, who had had amenorrhœa for four months, we failed to obtain a hæmorrhage with 220 mg. of pregneninonol This dose apparently was insufficient.

SUMMARY

(1) In normally menstruating women we have been able to induce uterine hæmorrhage during the intermenstrual stage by giving pregneninonol per os in the postmenstruum (intracyclic hæmorrhage) (2) In secondary amenorrhœa hæmorrhage has been induced by oral administration of pregneninonol without preliminary treatment with œstrogenic hormone (3) The effective dose of pregneninonol given by mouth is about six times greater than the effective dose of progesterone given by intramuscular injection.

We are indebted to the firm of Organon, Oss (Holland), for a supply of pregneninonol.

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ISOTONIC SODIUM BICARBONATE SOLUTION IN DIABETIC COMA

By Esben Kirk, M D Copenhagen

(From the University Clinic, Medical Department B, Copenhagen)

Before insulin therapy was introduced diabetic coma was to a very large extent treated with sodium bicarbonate Of late this treatment has been but little used, no doubt because in most cases of diabetic coma insulin therapy is so satisfactory that any other treatment of the acidosis is superfluous In some cases, however, insulin seems to act slowly, and in such cases it may be desirable or imperatively necessary to conquer the acidosis by other means

As I have previously reported (Kirk 1936), intravenous administration of isotonic (1 3 per cent) solution of sodium bicarbonate is an excellent and safe remedy for the quick relief of acidosis The dose can be calculated from the value of plasma bicarbonate after a line chart constructed by Van Slyke (1934) (see figure)

The isotonic solution is prepared from the best-quality powdered sodium bicarbonate, 13 g being dissolved in 1 litre of sterilised water immediately before use In hospitals where many patients with acidosis are received it will be practical to store such powders, weighed out at 13 g each The bicarbonate powder is not sterile, but experience has demonstrated that there is no risk in the intravenous injection of a solution made up immediately before administration. The solution cannot stand sterilisation by heat, for the bicarbonate gives off carbon dioxide and is changed into the strongly alkaline carbonate

For subcutaneous administration an isotonic solution should be used, made by diluting a concentrated (8 per cent) solution of sodium bicarbonate sterilised by passing through a Seitz filter The concentrated solution of bicarbonate may be stored in glass ampullæ

When treating the acidosis of diabetic coma it is generally necessary to determine the plasma-bicarbonate values several times during the first twenty four hours, excessive formation of ketone acids often reproducing the acidosis, on the other hand, oxidation of these acids elicited by administration of insulin may cause a greater rise in the alkali reserve than corresponds to the amount of bicarbonate administered Simultaneous treatment with bicarbonate and insulin, however, gives only a very slight risk of any considerable degree of alkalosis In circumstances where it is impossible to make plasma-bicarbonate determinations more than 2 litres of bicarbonate solution should not be administered at the start of treatment This dose will usually suffice to relieve the more severe clinical symptoms

In this article two cases of diabetic coma are reported in which the effect of insulin on the acidosis was so slow that treatment with bicarbonate was considered to be indicated

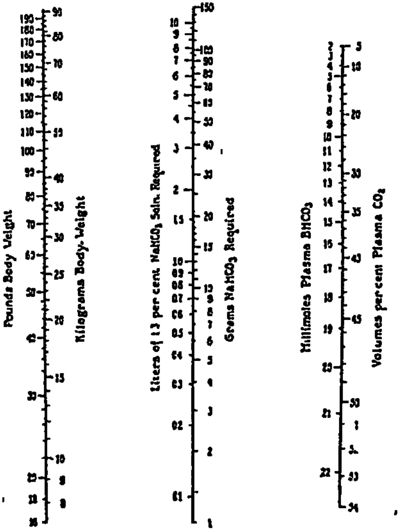
CASE RECORDS

Case 1 —A male retail dealer, aged 56, had suffered from diabetes for seven years, but contrary to his doctor's advice he had never taken any diet or been treated with insulin He had not previously been comatose Six days before admission he contracted an infection with high fever, cough, and tonsillitis He became worse and, when the doctor was called on the day of his admission, was unconscious and raving

On admission his consciousness was slightly blurred, but he could give fairly adequate information about his illness He was distinctly short of breath and smelled of acetone Examination of the lungs revealed numerous moist râles at the right infrascapular region The blood-sugar was 490 mg per 100 c cm., and analyses of the plasma revealed severe acidosis (9 4 mM of carbon dioxide per litre of plasma).

Shortly after his admission (8 45 P M) 120 units of insulin was administered, together with 1 litre of saline subcutaneously (9–9 30 P.M) and ample quantities of soda-water and milk to drink. In spite of this treatment the patient's condition became aggravated during the next few hours he no longer answered when spoken to, his respiration was snoring, from time to time of Cheyne-Stokes type, and his colour became grey and his eyes dull and sunken At 8 15 P M. another sample was taken for blood-sugar and bicarbonate determination The results revealed that, from a laboratory point of view, his condition had become worse, his blood-sugar was now 575 mg per 100 c cm , and his acidosis had grown more severe (5 6 mM of carbon dioxide per litre of plasma)

In view of the very grave condition of the patient the risk could not be taken of waiting longer for the insulin to act, therefore 2 litres of isotonic solution of sodium bicarbonate was given intravenously between 11 P M. and 12 o'clock As soon as 650 c cm had been injected the patient awoke from his comatose condition, answered questions in a normal manner, and talked spontaneously to his family, who had been called. Simultaneously his respiration, which before the administration of bicarbonate had been audible at a long distance, became of normal strength and depth but was still somewhat rapid After the whole 2 litres had been given his condition had improved further, and he began to cough up large amounts of mucopurulent sputum Examination



Line chart for estimating the amount of sodium bicarbonate required in acidosis to raise the CO$_2$ content of the plasma to 60 volumes per cent or the bicarbonate content to 25 mM per litre A straight line cutting the scales for body weight and plasma CO$_2$ or bicarbonate content will cut the middle scale at a point indicating the requisite dose of bicarbonate solution (From Van Slyke) of the blood at 1 A.M. revealed a blood-sugar value of 400 mg. per 100 c.cm. and a rise in bicarbonate to 17 6 mM. As the blood-sugar was still much increased, 120 units of insulin was again administered at 3 A.M., with the result that the acidosis was fully relieved (24·4 mM) and the blood-sugar normal (118 mg. per 100 c.cm.).

During the whole period of coma the diuresis had been ample, blood-urea only slightly increased (65 mg. per 100 c.cm), and the blood pressure at no time below normal.

During the following weeks the patient continued to bring up large amounts of sputum containing type VII pneumococci. Radiography showed a massive shadow at the base of the right lung, and for several days the temperature was very high. About ten days after admission he developed pneumonia on the other side, but in spite of these complications his general condition was not much affected. It was easy to regulate his diet and insulin dose, and a month after admission he was discharged in a perfectly satisfactory condition.

CASE 2.—A female designer, aged 21, had suffered from diabetes for five years and had all the time been treated with diet and insulin After inflammation of the nose she suddenly became worse and of her own accord reduced her insulin intake, after which she developed in a few days a condition of pre-coma. Her doctor gave her 80 units of insulin, but as she did not improve she was sent to hospital five hours later.

On admission she was fairly short of breath but not deeply comatose Her blood-sugar was only moderately increased (200 mg. per 100 c.cm.). Immediately after her admission (3 P.M.) 80 units of insulin was administered together with 1 litre of saline subcutaneously and ample quantities of milk and soda-water to drink. In spite of this treatment the patient's mind during the next hours grew more hazy, and at last she became unconscious. Bicarbonate determination at 6 P.M. revealed severe acidosis (5 5 mM of carbon dioxide per litre of plasma), and at 6 30 P.M. 2 litres of isotonic solution of sodium bicarbonate was given intravenously.

During the injection the patient became fully conscious and answered questions correctly and naturally. During the night 160 units of insulin was administered subcutaneously, together with glucose per rectum. Her consciousness did not again become blurred. The blood-urea, which on admission was much increased (178 mg per 100 c.cm.), became normal during the next few days. A month after admission the patient was discharged in a perfectly satisfactory condition.

SUMMARY

(1) Two cases of diabetic coma with severe acidosis are reported. (2) Treatment with insulin did not rapidly bring about the expected improvement of the acidosis (3) Treatment with isotonic solution of sodium bicarbonate immediately relieved the coma

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INTERNATIONAL UNION AGAINST TUBERCULOSIS.—The eleventh conference of the union will be held in Berlin from Sept 16 to 20, under the chairmanship of Dr. Otto Walter. The main subjects for discussion will be the problem of the virulence of the tubercle bacillus (opened by Dr Boquet, France, and Dr. A Saenz, Uruguay); the value of systematic examinations for the detection of tuberculosis in subjects over 15 years of age (Dr. H. Braeuning, Germany); the rehabilitation of the tuberculous (Sir Pendrill Varrier-Jones, Great Britain, and Dr. E Bachmann, Switzerland) Further information may be had from the National Association for the Prevention of Tuberculosis, Tavistock House North, Tavistock Square, London, W C 1.

CARDIAZOL TREATMENT OF SCHIZOPHRENIA

AND ALLIED STATES IN INDIAN PATIENTS

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MANY articles have been published on Cardiazol convulsion therapy in schizophrenia, but apart from the paper by Dhunjibhoy[1] from the Ranchi Mental Hospital, all of them have described experience with Europeans and Americans. The present paper summarises the observations on Indian and Anglo-Indian patients treated with cardiazol under tropical conditions in the Mysore Government Mental Hospital, Bangalore, South India.

The following preliminary observations on patients in Indian mental hospitals are relevant:—

(1) The proportion suffering from organic states—post-pyrexial, toxic, or exhaustive—is far greater than that observed in European hospitals.

(2) States of excitement are commoner than states of depression. (It is possible that both climate and diet help to determine the types of reaction.)

(3) Most patients are under-nourished and weak. Nutritional anæmias and vitamin deficiency are either frankly responsible for the mental disorder or colour the clinical picture. Mere attention to physical needs and general health often effects a spectacular recovery.

Because of the weak constitution of these patients modifications in the dosage and frequency of drugs producing shock, such as insulin and cardiazol, and of pyrexial agents are necessary. So far as cardiazol is concerned, one injection a week is often sufficient, and more than two are rarely necessary. If no improvement is noticed after six convulsions, the injections are discontinued. If they are given more often severe vomiting and diarrhœa are produced. I may add that insulin shock in patients in the tropics is very severe, uncertain in its effects, occasionally fatal in spite of all precautions, and hence much better avoided

Induction of convulsions with cardiazol in schizophrenic and allied states was first tried in the Bangalore Mental Hospital in September, 1937, and has gradually superseded insulin shock therapy, first tried in December, 1935. Most of the patients were suffering from schizophrenic states, the dull and seclusive, the stuporous, and the catatonic. Four were depressives, two hysterics, and four confusional-reaction types. The first two patients on whom the injections were tried are referred to in some detail The observations on the other patients are recorded in the accompanying table.

CASE-RECORDS

Our first patient (case 1 in the table) was a college student, aged eighteen, in a catatonic stupor. Prolonged narcosis, baths, and induced pyrexia were of no avail. With one convulsion with cardiazol (5 mg) he came out of his stupor and became friendly and coöperative. After eight weekly injections he was discharged as "recovered" I interviewed him in September, 1938, about eight months after discharge. He has maintained his improvement and gone back to college, where he is doing well.

The second patient (case 15) was a woman, aged 28, who developed a stupor two weeks after the birth

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[1] Dhunjibhoy, J. E (1938) *Lancet*, 1, 370

TABLE OF RESULTS

Case	Age	Sex	Duration of disorder before admission	Date of admission	Reaction type	Injections: Date of first injection	Injections: Subsequent	Injections: Total	Remarks
1	18	M	15 days	May 6, 1937	Schizophrenic (catatonic)	Sept 25, 1937	7	8	Recovered and discharged, Nov 18, 1937
2	25	M	2 years	Nov 22, 1937	Schizophrenic (paranoid)	Feb 15, 1938	4	5	Improved and discharged, May 26 1938
3	24	M	30 days	Dec 5 1937	Catatonic stupor	Feb 15, 1938	2	3	Recovered and discharged, April 11, 1938
4	20	M	21 days	Dec 2 1937 (readmission)	Schizophrenic (catatonic)	June 23, 1938	—	1	No improvement in mental condition, but improved from catatonic condition
5	20	M	1 year	Mar 10 1938	Catatonic stupor	June 23, 1938	1	2	Recovered and discharged, July 30, 1938
6	16	M	90 days	May 6 1937	Schizophrenic (paranoid)	Oct 10 1937	3	4	No improvement, discharged at request, Nov 2, 1937
7	23	M	7 days	Nov 11, 1937	Schizophrenic (paranoid)	Mar 15 1938	5	6	No definite improvement, discharged Sept 17, 1938
8	26	M	90 days	July 4, 1938	Post pyrexial (catatonic)	July 11, 1938	4	5	Recovered from catatonia, still in hospital
9	25	M	90 days	July 24 1938	Hysterical reaction	Aug 6 1938	2	3	Improved
10	23	M	15 days	Sept 3, 1938	Schizophrenic (paranoid)	Sept 19, 1938	1	2	No definite improvement, still in hospital
11	24	M	15 days	Aug 2, 1938	Post pyrexial (catatonic)	Aug 31, 1938	6	7	Recovered
12	30	M	30 days	July 25 1938	Paranoid tendency (syphilitic)	Sept 23 1938	—	1	No improvement
13	30	M	8 mths	Jan 10 1938	Schizophrenic (catatonic)	July 5, 1938	1	2	Improved as regards catatonia
14	35	M	2 mths	Sept 18 1937	Schizophrenic	Sept 7, 1938	—	1	No improvement
15	28	F	1 year	Sept 18 1937	Catatonic stupor after childbirth	Feb 28, 1938	49	50	Lives a cardiazol life
16	27	F	2 years	Dec 12, 1937	Catatonic stupor	Mar 16, 1938	1	2	Recovered
17	25	F	10 mths	Sept 21, 1937	Schizophrenic depression (organic)	—	1	2	No improvement, still in hospital
18	28	F	—	Aug 12, 1935	Schizophrenic (catatonic)	Feb 24, 1938	3	4	No improvement, discharged at request, Aug 3 1938
19	30	F	30 days	June 10, 1938	Hysterical reaction (catatonic)	June 23, 1938	6	7	Recovered and discharged Aug 11, 1938
20	32	F	2 days	June 13, 1938	Depressive state	July 4, 1938	7	8	Recovered and discharged, Aug 10, 1938
21	18	F	1 year	June 8, 1938	Catatonic after childbirth	June 24, 1938	3	4	Improved and discharged at request, Aug 18 1938
22	14	F	3 years	Jan 7 1938	Hysterical (post pyrexial)	April 15, 1938	2	3	Improved and discharged at request, June 4, 1938
23	25	F	2 years	Mar 17 1938	Schizophrenic reaction	Mar 21 1938	11	12	No definite improvement, discharged at request, Sept 18 1938
24	25	F	2 years	Mar 26, 1938	Schizophrenic depressive state	April 29, 1938	2	3	Improved and discharged June 26, 1938
25	32	F	30 days	April 9 1938	Depressive state (paranoid)	May 3 1938	3	4	No definite improvement
26	24	F	4 mths	June 20, 1938	Schizophrenic (catatonic)	July 17, 1938	7	8	Improved and discharged, Sept 26, 1938
27	40	F	4 mths	July 16, 1938	Schizophrenic	July 22, 1938	4	5	No definite improvement
28	20	F	90 days	July 9 1938	Depressive state	July 28 1938	1	2	Improved mentally died of encephalitis, Sept 19 1938
29	18	F	1 year	Aug 1, 1938	Schizophrenic (catatonic)	Aug 9, 1938	—	1	Recovered from catatonia mentally the same still in hospital
30	24	F	60 days	July 20, 1938	Schizophrenic (paranoid), puerperal	Aug 15 1938	—	1	Improved
31	35	F	30 days	July 20 1938	—	Sept 4 1938	2	3	Recovered
32	22	F	15 days	—	Schizophrenic (catatonic)	April 9, 1938	—	1	—
33	40	M	4 mths	Nov 12, 1936	Schizophrenic	June 4 1938	2	3	Improved and discharged, June 17, 1938
34	40	F	4 mths.	Aug 16, 1938	Hysterical	Oct 3 1938	3	4	Recovered

of her fourth child and was admitted to hospital almost immediately. She was in a cataleptic trance, immovable and had to be fed and clothed and have all her bodily needs attended to. The history stated that she had had a similar stuporous phase after her second confinement, from which she recovered spontaneously after three months. There was no mental breakdown after her third child. For nearly four months routine methods of treatment were tried but were of no use. Convulsions were then induced by cardiazol She reacted very well to the first injection. She came out of her trance-like condition, became friendly and cooperative, and her conversation was sustained, sequential, and relevant. But three days later she sank back into her stupor and was revived by another injection only to sink back again into stupor after a few hours. The amount of cardiazol needed to induce a convulsion has increased from 5 to 22 mg The lucid intervals depend entirely on cardiazol. She has had nearly fifty injections and is living a cardiazol life analogous to the insulin life of a diabetic. She is still in hospital

OBSERVATIONS AND CONCLUSIONS

(1) Cardiazol is a valuable means of treatment. Of 34 patients 12 have recovered and 10 have improved; 12 have shown no improvement.

(2) Compared with other methods of shock treatment, cardiazol therapy is relatively safe This is of particular importance in Indian patients, most of whom are weak and undernourished, and in whom insulin has a limited application.

(3) The following adverse effects have been noted (*a*) Vomiting and diarrhœa in all patients if cardiazol is given too frequently. Five patients were more than ordinarily susceptible, and in them even one injection produced severe diarrhœa. (*b*) The convulsions are usually like epileptic fits, but atypical fits—delayed, recurrent, or continuous—were all observed (*c*) After a few fits patients become apprehensive of further injections.

(4) The pupils, during the fit, in all cases were widely dilated, but in a considerable number they showed alternate contraction and dilatation lasting for a maximal period of nearly three minutes.

(5) Three intelligent well-behaved patients described a curious feeling of lightness, of levitation, and that they felt they had no bodies at all. This feeling akin to depersonalisation is worth notice.

(6) The improvement effected by cardiazol convulsions has been not only in frankly schizophrenic stupors but also in depressions and confusional states. In view of the tendency to natural remissions and spontaneous recoveries in these states, it appears that cardiazol is *not* a "specific cure" for any of these conditions. It is probable that its action is to hasten recovery.

(7) Cardiazol seems to exert maximal beneficial effect on early cases of mental disorder characterised by emotional and intellectual blocking and reduced psychomotor activity, but without severe destruction of nerve-cells

(8) Some patients have to live a "cardiazol life" for prolonged periods analogous to the insulin life of some diabetics.

"... I am convinced that the reputation and success of the dentist of the future will depend more on his sound nutritional knowledge on how to prevent dental defects than on his skill to execute beautiful M O.D gold inlay restorations, or to remove impacted teeth surgically." —J. MENZIES CAMPBELL, in his presidential address to the West of Scotland branch of the British Dental Association, *Brit. dent. J.*, Feb. 15, p. 219

ISOLATED AVULSION FRACTURE OF THE LESSER TUBEROSITY OF THE HUMERUS

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WHEREAS various injuries, such as dislocation of the jaw and of the shoulder, have been described in connexion with convulsion therapy of schizophrenia, isolated fracture of the lesser tuberosity of the humerus—i e, *fracture not accompanied by any other injury*—is an extremely rare accident in ordinary surgical practice and has hitherto been unknown as a complication of this treatment. In other circumstances such a fracture has been reported by Hartigan (1895) and Stangl (1933) It is therefore worth while to report a case due to sudden contraction of the subscapularis muscle, the tendon of which is inserted mainly into the lesser tuberosity

A woman aged 36 was admitted to the Leicestershire and Rutland Mental Hospital on Oct 28, 1938. She was well nourished and in good physical condition. Three months after the birth of a child by cæsarean section she developed a confusional psychosis; as the confusion cleared, it was noticed that she had definite persecutory delusions and aural hallucinations. She had been in another mental hospital during the acute stage of her illness

Convulsion therapy was begun on Nov. 4. The convulsant used was triazol 156 (Azoman) At the first injection she was given 2 c cm of a 5 per cent solution intramuscularly and had five major epileptiform convulsions. To control more readily the number of convulsions following injection of the drug, at three subsequent treatments 2 c cm. was given intravenously and was followed by one epileptiform attack on each occasion. At the fifth injection, as the tonic contraction of the muscles began, there was an audible crack, and later she complained of severe pain in the left shoulder.

On examination there was some swelling of the region involved but no obvious bony deformity Internal rotation of the arm was limited and painful and any attempt at external rotation produced very severe pain There was definite localised tenderness over the anteromedial aspect of the shoulder. A radiogram showed an abnormal shadow lying downwards and medially from the humeral head There was no other injury. The case was seen by Mr R S. Lawson, consulting surgeon to the hospital, who confirmed a diagnosis of avulsion of the lesser tuberosity of the humerus and decided to attempt fixation by open operation.

The operation was performed on Nov. 29. The head of the humerus was exposed, and it was found that a large part of the lesser tuberosity had been avulsed and displaced downwards and inwards The subscapularis tendon had also been torn at its insertion The head and neck of the humerus and the greater tuberosity were intact. The tendon was repaired, but the avulsed fragment was such a frail shell of bone that it was not found practicable to fix it.

I am indebted to Dr. K. K Drury, medical superintendent of the hospital, and to Mr. R S Lawson, hon. surgeon to Leicester Royal Infirmary, for permission to publish these notes, and to Dr. G. A van Someren for the radiogram.

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MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTION OF EPIDEMIOLOGY AND STATE MEDICINE

AT a meeting of this section held on Feb 24 under the presidency of Dr J A H BRINCKER, a discussion took place on

The Proper Sphere of State Medicine

Dr ALFRED COX (London) said that this question had been more often debated inside the medical profession during the last 25 years than any other He himself envied, though he could not agree with, those who had no hesitations and were sure that the proper sphere of the state in the provision of medical attendance is to make it free to all, like primary education He had to confess that the only solution he saw was *solvitur ambulando* Clearly the last word in the decision must rest with the community and not with the medical profession, but we should be able to offer a reasoned opinion He felt it an imperative duty to keep the medical profession and the rights and privileges and welfare of the individual free from the shackles of standardisation—a condition inevitably resulting from government control He agreed that the state has a legitimate and necessary sphere in dealing with the health of the community en masse In this sphere the civil servant was seen at his best but the very qualities distinguishing the medical official unfitted him to deal with the individual The attitude of a patient towards his own doctor was quite different from his attitude towards a state or municipal officer The growth of specialisation meant that one man must specialise in mass medicine, the other in individual medicine, and patients wanted to be looked after by somebody who would be their own doctor and would owe no allegiance to anyone else The idea of the robot patient putting a coin into the robot doctor and receiving all he needs for diagnosis and treatment was abhorrent to human nature Even in authoritarian countries necessities such as food, housing and clothing were left to individual choice, yet a much better logical case could be made for free state provision of food, clothing and housing than for schooling and doctoring

His views did not exclude the state from giving assistance where necessary, indeed he felt sure that in the near future there would be more and not less state aid for medical attendance. He had no fear of the old bogy of "socialism", it had been well said that "you could get our people to accept any amount of socialism so long as you did not call it Socialism" He was not entirely satisfied with the provision of medical attention at the moment but he believed that an extension of some form of insurance was the best solution This had the advantage of making the individual feel that he is, as far as possible, providing for his own medical attention himself The proportion of cost to be borne by the state had already been shown to be small, and Dr Cox cited the universities and the Medical Research Council as a proof that a moderate amount of state aid is not incompatible with freedom in essentials

His own answer to the question under debate was that the proper function of the state is to leave the actual provision of medical attendance as far as possible to a free profession dealing with a free people, to encourage the profession and people to make voluntary arrangements where practicable, preferably on an insurance basis, to make such arrangements compulsory where the voluntary principle does not work, to aid financially those citizens who cannot provide entirely for themselves, and to keep the "dead hand" of officialdom as far off as possible

Dr ANDREW TOPPING (London County Council) confessed that he was a "whole hogger" in support of a state medical service when he observed the present conditions and the present provision for medical attendance for the great bulk of the people The majority of doctors did not continue their training by holding resident appointments, they had no postgraduate education, and they were unable to keep up to date by reading medical literature after qualification medicine at present was a rather unethical trade During the medical student's training he was constantly urged not to treat symptoms, but from the moment of qualification he did almost nothing else No wonder that Dr Robert Hutchison had said that if all doctors went on strike very little difference would be seen in the death rate We should face the fact that the sole use of the average general practitioner was to be a grateful and comforting mental poultice The conditions under which they work must lead to a lowering of income if they were honest, or to a loss of self respect if they were not These unsatisfactory conditions were not confined to the general practitioner Why was it necessary for all the specialists in London to congregate in Harley Street? The would-be specialist had to lead the life of an anchorite for ten years after qualification until he developed the three requisites for a successful physician—baldness, horn rimmed spectacles and hæmorrhoids—the first to give him an appearance of experience, the second an air of wisdom, and the third that anxious look so comforting to the patient He did not wish it to be thought on the other hand that all was well in the public health world in the smaller areas the outlook was often far too parochial Throughout the whole field of medicine, in his opinion, present conditions led to a struggle between the soul and the pocket—a struggle in which the pocket was bound to win

He realised all the difficulties which would have to be faced but he was convinced that the problem of avoiding red tape and the other errors of officialdom could be solved the results of the 1029 Local Government Act had exceeded the most optimistic forecasts His own dream was that, with an assured future, a finer race of medical students might be evolved, those of poor quality having been eliminated early in their career Every doctor should do two years in hospitals after qualification, although the present curriculum might be shortened and simplified He would like to see clinics working in the closest coöperation with hospitals, and with the doctors that served them paying the necessary domiciliary visits The whole must be under a largely non political control He had no use for the argument that those in receipt of a fixed salary did only the minimum of work Nor had he any passionate affection for the principle of free choice, since free choice was at present largely non existent

Dr FRANK GRAY (Wandsworth) agreed that present arrangements are in many ways unsatisfactory, especially in the economic bar to adequate medical attendance, the lack of coördination between practitioners, clinics and hospitals, and the lack of attention *paid to the mental aspects of disease* He felt that the successes achieved by the state—such as they are—were in problems concerning the community as a whole. The marks of the government official were self-contentment, regard to appearances rather than facts, and the avoidance of trouble. These characteristics had been clearly shown in the arrangements made for the protection of the country against aerial attack. He agreed with Dr. Cox on the one hand that the system of fees per attendance would have to go, and on the other hand that a salaried profession would lose its individuality: an extension of health insurance was his solution also.

Dr. E R. C. WALKER (Aberdeen) was convinced that the present system has led to the abandonment of the scientific approach to medicine The state of health of a person at any moment was the measure of his success in reacting to his environment and the essential function of the state was to alter the environment in a favourable direction The proper sphere of state medicine was therefore the whole field of medical policy and he thought that the distinction between health en masse and the health of the individual was rather an artificial one It was not by chance that we spoke about the medical services, since medicine was a service and not a business He thought that the extension of the national health-insurance system would perpetuate the grave disadvantages inherent in it. These disadvantages were primarily (*a*) that it is a sickness and not a health service, (*b*) that the financial nexus involved in certification vitiates the proper relation between *doctor and patient, and (c) that a per-capita* remuneration is unsound and introduces an improper cash bias He himself would like to see a salaried national service which would preserve as far as possible freedom of choice for the patient and which would be administered largely by the profession itself.

Mr SOMERVILLE HASTINGS (London) felt that, when once the state had interfered, the extension of its control was inevitable. Interference by the state in such matters as water-supply was of very long standing and it had soon been realised that in order to prevent, one must also treat. hence state "encroachment" in infectious diseases, tuberculosis, venereal diseases, and so on. The treatment of cancer was now being taken over by the state: next might come rheumatism, fractures and so on. Since diagnosis must precede treatment and the all-important person for diagnosis was the general practitioner, he must inevitably be drawn into the state schemes Mr Hastings agreed that the general practitioner must be an individualist, but that need not prevent him being included in a general service; the good points of the general-practitioner system might be grafted into a state system If insurance was to be compulsory he could see little difference between an insurance system and a system paid for by the rates and taxes It was possible to maintain a system of free choice, but he did not think it important, since there was no sphere in which it is so difficult for the individual to estimate the value of the service he receives

Dr W. A DALEY (London County Council) had recently had visitors from two countries in which the system was practically a state medical service: they had been enthusiastic in praise of their respective systems He thought that an extension of the clinic system, as envisaged by Dr. Topping, was inevitable, at least in urban areas The national health-insurance system had not come up to expectations It did nothing to prevent sickness. He thought that the principle of free choice was largely a relic. Nowadays persons had transferred their affection from individual doctors to institutions, and the failure on the part of insured persons to transfer to another doctor on the death or retirement of their own doctor showed what little store they set by the principle As far as political control was concerned, his own experience was that the party in opposition, whatever its political complexion, tried to stimulate the party in power to action and this was a good thing.

Dr. C. F. WHITE (M O H, City of London) felt that at present it is impossible for the doctor to be frank. His own father had started in practice with that intention but soon found it impracticable. He thought a knowledge of the home conditions essential to the doctor who has to give treatment and therefore any system must provide for a family doctor Under a state system the highest level attained by individuals might be lower than under a fiercely competitive system, but surely the low levels could not possibly be so low as they were now.

Dr. R. P. GARROW (M O H, Hornsey) thought that the term "mass medicine"—introduced, he thought, from Russia—was a mistake He quoted Sir Kingsley Wood as saying that within a brief period the consumption of bottles of medicine under the national health-insurance system rose from 44 million to 66 million: if anything was "mass medicine" surely this was? There was no microbial disease whose cause had been discovered by a doctor practising in this country; whereas the Royal Army Medical Corps—crushed by Dr Cox's "dead hand" of officialdom—had discovered the cause of a number *of these diseases.*

MEDICO-LEGAL SOCIETY

AT a meeting of this society held at Manson House on Feb 23, with Mr. Justice HUMPHREYS, the president, in the chair, a discussion on the

General Medical Council

was opened by Mr. *D. HARCOURT KITCHIN, barrister-at-law.* He suggested that, although the general public and medical men were interested in the council, they know on the whole extremely little about it Neither doctors nor laymen went to the public gallery of the council from interest in the proceedings, and the only persons who saw the council at work were the doctors who were summoned to appear before it, the lawyers who argued for and against them, and journalists. Many of the public confused the functions of the council with those of the British Medical Association and thought it was like a trade union Actually, it was a department of state set up by the Medical Acts, 1858–86, to keep a register of persons who were properly qualified to practise medicine For this purpose it must supervise education and examination, and so it necessarily consisted largely of representatives of the licensing bodies The remainder of its 39 members were 5 persons nominated by the Crown and 7 direct representatives of the medical practitioners of England, Scotland and Ireland. The council also issued the British Pharmacopœia

For the purpose of keeping the register, the council had drawn up a series of standing orders which had been duly approved by the Privy Council and Parliament By section 14 of the 1858 act, the registrar must erase names of all practitioners who had died and make necessary alterations in addresses or qualifications For this purpose he wrote from time to time letters of inquiry to doctors on the register, and if he received no answer within six months he erased the name. Sometimes a ship's surgeon would find on applying for a post that his name had disappeared from the register through his failure to receive a letter from the registrar; he could then have his name restored on complying with certain formalities. Theoretically, a doctor whose name was so erased might transgress the law unwittingly through signing death certificates or prescribing dangerous drugs, but in practice such prosecutions were probably unknown. If a licensing body cancelled a doctor's qualifications, it must notify the registrar, and he was then bound to erase those qualifications from the register. In practice he erased the name also. A practitioner could not now have his name erased at his own request. The standing orders had once allowed this, but the council had been advised that the act did not permit it.

A doctor's name might be erased penally on one of two grounds: conviction of a criminal offence, or a finding by the council "after due inquiry" that he was guilty of "infamous conduct in a professional respect." The "due inquiry" was one containing the substantial elements of natural justice (Leeson *v* G.M.C., 1889) and "infamous conduct" had been stated by the Court of Appeal in Allinson *v* G.M.C. (1894) to be something that would be reasonably regarded as disgraceful or dishonourable by a doctor's professional brethren of good repute and competency. The procedure of the council resembled that of a criminal court, except that witnesses were not sworn. The council was assisted by a barrister sitting as judicial assessor; it deliberated in private, and the president announced its decision in public. The council could punish only by erasure, but had adopted a practice in cases which did not deserve this severe penalty of suspending judgment until a named future session, when the doctor would be required to appear again and bring evidence of good conduct in the interval. An erased name might be restored after a varying period. There was no appeal from a decision of erasure, except on the ground of gross irregularity of procedure, of which the council could not conceivably be guilty.

Mr. Kitchin criticised the composition of the council and its penal procedure, chiefly on grounds which the council had no power to remedy. He maintained that a tribunal consisting of 39 medical men, most of them unacquainted with general practice, was unwieldy and unsuitable. The medical mind, trained to be initially receptive of evidence and to be critical only at a later stage, was not suitable for judicial inquiry. The worst defect in the proceedings was, however, the inability of the council to compel the attendance of witnesses, to administer the oath, and to award costs against a party whom it considered at fault. A vindictive complainant might well find it worth while to spend money on bringing witnesses to London and maintaining them during the hearing, on a scale of reimbursement into which no-one could inquire. The respondent doctor could only bring such witnesses as he could persuade to come, and could not recover his expenses even if the charges were proved to be unfounded. The absence of an oath opened the door to all manner of false evidence. The council was therefore far too apt an instrument of private vengeance by, for example, a partnership against a competing practitioner, a jealous husband against a doctor whom he accused of seducing his wife, or a woman infuriated at the decline of a doctor's affections. The council seemed to adopt too lenient an attitude towards drunkenness, and too severe or indiscriminating an attitude towards doctors accused of sexual misconduct. He urged the council on the one hand to remember the danger to the public represented by a drunken doctor, and on the other to regard each allegation of sexual misconduct on its merits and inquire whether there had been a substantial breach of professional confidence.

He outlined the disciplinary procedure of the Law Society, which kept the solicitors' roll, and suggested that a new Medical Act should provide for a penal tribunal consisting only of 5, perhaps of 3, members, of whom the majority should be general practitioners and the chairman a barrister used to conducting judicial inquiries. This tribunal should have power to summon witnesses and administer the oath, and discretion to award costs. It should be able to suspend a doctor from exercising the statutory privileges of registration or to impose a fine. An appeal should lie from its decision to the Divisional Court. Hearings in camera should be restricted to the taking of "physiological" evidence, and to cases in which justice could only be done by a private hearing. The reporting of "divorce" evidence should be restricted as in the courts. Direct representation of practitioners should be enlarged, and a named proportion of these representatives should be women. He did not regard the council as too old, but would like to see more younger members.

Sir HENRY BRACKENBURY said he had been a direct representative for fifteen years. The facts about the council were so usually perverted that it was gratifying to find them so accurately set out. Restoration was frequent after one or two years, and after five years it was common. The council had to be constituted to perform three functions: the regulation of medical education (by far the most important), the publication of the pharmacopœia, and the keeping of a register of persons whom the public could safely consult. These functions were diverse and it was not easy to form a body to deal with them all. It must either contain people more competent for one or two of its functions than for others, or else divide itself into three sections—which was not allowed by law. He thought the system had in practice worked with efficiency and with justice. He would prefer a rather smaller body with a much higher proportion of direct representatives. He would group educational bodies for representation; he found these members apt to take a narrow-angled view. The public were at a grave disadvantage in not knowing what took place during the private debates on the evidence; every point that could occur to any one of 39 intelligent persons was brought forward and weighed, and the legal assessor took an important part in those discussions. To ask for publicity about that period was like asking for details of a jury's deliberation. The council was the jury, although the functions of judge and jury were not separated. The council was a worthy and very merciful tribunal. If anything, the council paid too much regard to the doctor and too little to the public interest. He did not agree at all that the medical mind was inadequate in estimating evidence. He had very often wished that witnesses could be compelled and sworn—if indeed, the oath made any difference. The defence societies were far more often concerned in defence than in complaint. It was almost impossible before the General Medical Council to prove a case of canvassing; it was extraordinarily difficult to bring up witnesses. He had no doubt which in the mind of the public was the more popular offence: adultery or drunkenness, It was drunkenness. Very many people regarded drunkenness as an accompaniment of particular cleverness. The distinction between the existence and the abuse of professional relationship had never previously occurred to him and he did not quite understand it Such a distinction had never been pleaded before the council; everyone assumed that if professional relationship had existed it had been abused.

Dr H LETHEBY TIDY declared that the whole object of the act was to enable the public to distinguish qualified from unqualified practitioners The council was there to keep the register pure and not to punish the doctor, and this was never forgotten. He did not think costs should be awarded Judges did not normally have intimate knowledge of the crimes they tried Adultery was the most serious crime a doctor could commit He was betraying the faith of a client, and that was the depth of infamy. It was not excused by a doctor giving up practice and leaving the neighbourhood. When the Law Society had had a little more experience they would see how imperfect their act was There were advantages in a small disciplinary committee He did not consider that medical education would necessarily be improved if drawn up by direct representatives Women would be welcomed on the council—as on the bench

Mr. DOUGLAS BARTLEY (the Legal Assessor) emphasised again that the General Medical Council did not try a case, but were there merely to inquire whether a doctor, according to the views of the profession itself, had been guilty of infamous conduct. The question usually resolved itself into one of fact. The council was a jury. To suggest that the 39 members of the council were less able to make up their minds than the 8 jurymen in a county court was ludicrous Nobody else could be better judges of whether there had been breach of professional ethics He did not favour a right of appeal. He agreed that sub pœna would be a great advantage, but did not think it would be an advantage to swear the witness. It was no more difficult to discover who was speaking the truth without an oath. He was not happy at the idea of giving costs The gift of costs had not diminished speculative actions in any court To give reasons for the council's decision would be a perfectly fatal error. Every case was entirely different.

Mr. BARRY O'BRIEN (solicitor) declared that, as a lawyer, he thought the speaker had made out his case and had only overloaded it The primary defect of the council was its cumbersomeness He could not see how 39 people could ever satisfactorily administer justice He did not know whether the judgment was a majority or a unanimous one He would not care to be convicted by a majority of 1 Drunkenness was not looked upon seriously in this country, because every man had suffered from it, but for some reason there was a very different feeling about adultery He had been appalled to hear a lawyer say that the giving of reasons for a decision was of no moment. In a court of law the prisoner and public heard an able summing-up by a judge. In a court-martial a lawyer properly summed up the case at the end

Sir WILLIAM WILLCOX described the function of the General Medical Council as the maintenance of a high standard of medical practice. Its relationship to the Privy Council was a great protection to the profession

Mr. KITCHIN, in reply, said it was most important that justice should *appear* to be done There was extraordinary unanimity among the pressmen attending the council's meetings, they all came away from each session gritting their teeth at some apparent injustice. He did not ask for a statement of the minds of the jury but for the sort of reasoned statement a judge sitting alone would make. The fact that drunkenness was a popular offence was no reason for treating it leniently in doctors Dr Tidy's frankly expressed attitude towards adultery must make it difficult for him to judge each case on its merits There should, of course, be discretion as to costs He had always thought the oath put the brake on perjury a little.

MEDICAL SOCIETY OF LONDON

AT a meeting of this society on Feb. 27, with Dr C E. LAKIN, the president, in the chair, a discussio *on the principles underlying the*

Modern Treatment of Fractures in the Extremities

was opened by Mr. W ROWLEY BRISTOW Many members would, he said, remember the days when fractures had been treated purely as an injury o bone In 1895 Lucas-Championnière had concentrate *attention on the function and treatment of the sof* parts, and some years later, under Arbuthnot Lan in England and other authorities abroad, fractures had been treated by open operation for reduction and fixation Both these methods had given excellent results in the hands of the pioneers, but thei followers had not been so successful. In the late war Sir Robert Jones had insisted on segregation *and unity of control, a method which, forgotten for* an interval, was now being recaptured

An outstanding feature of modern treatment was the recognition that a fracture was a dual injury. Böhler, by his splendid clinic organisation, had given a great stimulus to modern treatment and done everything possible to encourage treatment of the soft parts and restoration of function. The injury of *the bone and that of the adjacent tissues* should be treated side by side. In the second stage of fixation, and in the third stage of protection until union had consolidated, treatment of the soft parts had considerable and in many cases paramount importance Bony union was not firm until intramedullary callus had formed between the ends To understand malunion it was necessary to appreciate the need for consolidation. The method of reduction would depend partly on how the fracture had been produced Skeletal traction was necessary *for the* reduction of some fractures, such as those of *the* tarsal bones of the foot and overlap or comminuted fractures in the lower third of the tibia and fibula In others open reduction was essential—e g, *fracture of the external* condyle of the humerus in a child—otherwise the parts might fail to unite and the ulnar nerve might be involved years later Certain fractures, such as comminuted fracture of the head of the humerus, could not be reduced; there was here no need to splint the bone, and treatment should be concentrated on the soft parts The interpretation of skiagrams, *particularly of the shoulder, must be* backed up by clinical evidence and observation. There was great danger in generalising from a child to an adult

In treating the ordinary Colles fracture it was absolutely necessary, having reduced the open deformity, to hold the fracture until it was unite and to protect it from strain until it was consolidated—to go through the whole gamut of treatment of bone. In treating the soft parts a dorsal plaster slab was applied, running from the upper part of the forearm to below the head of the metacarpal bone, and the patient was encouraged to make every possible movement of the hand, elbow and shoulder in pronation and supination, but was prevented from moving the wrist. This method was often considered novel, but had been exactly described in a textbook by Helferich published in 1899. Shortening of the ulna might throw the radio-ulnar joint out of alignment and practically abolish pronation and supination. Baldwin's operation of resecting a piece of the ulna would restore the joint.

The neck of the femur and the carpal scaphoid had no muscular attachments and were difficult to fix; the treatment was therefore treatment of bone and prolonged fixation by splintage. The scaphoid might have to be fixed for nine months in order to get union. Fixation should, however, not interfere with the carpometacarpal movement, or stiffness might result. Mr. Bristow showed a film illustrating functional results of treatment, sometimes after very short periods. In conclusion, he said that treatment might change but the principles upon which it was founded were timeless and immutable. He pleaded for segregation and unity of control in the London teaching hospitals, and for better instruction of the student by demonstration on the mass of material which could only be found at a large hospital.

Mr. T. P. **McMurray** said that the basic principles of treatment of a fracture were the provision of sound bony union in the shortest possible time with the fewest possible complications. Technique was suggested by the mechanical ingenuity of each surgeon and should not follow rigid principles. Time could usually be minimised by holding the fracture and freeing it from strain. In children, or in certain parts of the body in adults—e.g., the clavicle and ribs—movement of the fracture did not matter. In the scaphoid or neck of the femur it would prevent union. The worst complication was probably stiffness of joints from wrong fixation.

A normal joint which was not the site of arthritis could be held in a normal position indefinitely and rigidity would not result. A man who had been fixed in a normal sitting position in a barrel for five months had emerged without stiffness. The cock-up hand splint used in the war had produced appalling rigidity at the metacarpo-phalangeal joints, but when the splint had been bent so that the joints of the hand were slightly flexed, no stiffness had resulted. A fracture that gave much trouble was the comparatively rare transverse fracture of the anatomical or surgical neck of the humerus with complete dislocation of the upper fragment. The loose fragment lay in the subglenoid cavity or subcoracoid region and could not be retracted without much damage. The fracture could be reduced easily if the arm were pulled straight above the head by constant steady traction; the fragment would slip back into position spontaneously. Non-union of a fracture of the humerus was due largely to the use of traction. These fractures did not need artificial traction; the weight of the forearm provided all that was necessary.

Three types of fracture of the elbow-joint called for operation. Fractures of the external condyle were always twisted by the pull of the common extensors of the forearm. Fractures of the internal epicondyle could be reduced by manipulation, but this would cause great trauma. A good result could be achieved merely by extracting the fragment from between the two bones, even if it were removed altogether. In fracture of the olecranon, even if the fragments could be supported, the joint should be opened. Supracondylar fractures round the elbow-joint should be treated in the ordinary way by reduction, fixation and flexion, but the other three injuries could not be so treated, because the fragments could not be brought into position.

Fracture of the shaft of the ulna with dislocation of the head of the radius was very difficult to induce, because of the difficulty of keeping the head of the radius back. Sometimes it could be retained in position by keeping the elbow in flexion, but sometimes it could not, and there might be no alternative to removing it. The idea that once a Colles fracture was reduced it could be held with stamp edging had been abandoned; unless it were fixed there would be redisplacement in 25 per cent. of the cases. Injuries of the semilunar bone were nearly always dislocations. The fragment should be replaced in the normal position, but if the fracture were two or three weeks old the correct treatment was to remove the semilunar bone if it could not be replaced by manipulation. This would avert the risk of the open operation and permanent stiffness through arthritis.

In a certain proportion of fractures of the neck of the femur, surgery should not be used and lack of union should not be considered a disgrace; the patient's health and even life were endangered by immobilisation. Pinning of the neck of the femur was incomparable if it succeeded, but it failed in about 20 per cent. of cases. The surgeon should learn to recognise its contra-indications and then perform an osteotomy to transfer the shaft of the femur under the head. This operation had many disadvantages and the patient was in plaster for about 3½ months, but the result was usually firm and good.

Fractures of the trochanteric region generally united, but their tragedy was that if they were not fixed in the proper position they united with great eversion, which must be treated by osteotomy. They could be treated in extension or plaster without internal fixation if the first position were good. Fractures into the knee-joint were difficult, the worst being fractures of the condyles of the tuberosities of the tibia. In treating the abduction fracture there was no rule whether it should be reduced or left alone. Reduction was usually very difficult, and a better result would usually be achieved, unless the deformity were severe, by leaving fragments as they were—by concentrating on movement and leaving the joint slightly out of alignment. Lane's advocacy of reduction had been somewhat excessive, and the present tendency was to return to the other extreme of Lucas Championnière and to aim at perfect movement in the adjacent joints. Fractures could not, however, be left in gross malalignment, for neither patients nor hospitals would submit to it. A middle way could perhaps be found by following the fundamental principle of reduction and fixation until union was complete. There was no definite time-limit for union, and clinical observation would give more help than radiography. Thomas's test of tenderness on pressure held good. When the union was firm both physically and radiologically, there was no reason why the alignment should not be maintained.

Mr. I. F. H. **Roberts** remarked that shortening, in certain bones, was not important; angulation caused severe dysfunction, but rotation was the worst enemy of all. He had been obliged to perform many osteotomies after the war on patients whose forearms had been put up in pronation or semipronation and who had not been able to supinate them afterwards: the surgeons had not obeyed the old maxim that the patient should be able to spit into the palm of his hand Good results could only be obtained by individual treatment Every patient who had an operation on the chest and whose arm was kept at his side suffered from a stiff joint: movements must be commenced from the day after the operation.

Mr N St J G. **Dudley Buxton** asked why Mr. Bristow allowed patients suffering from fracture of the neck of the femur to walk without protection, in apparent breach of his own principle Difficulty occurred in fracture of the middle or upper third of the ulna, which was generally oblique and associated with a dislocation forward of the head of the radius This injury was commonest in adolescents, in whom removal of the head of the radius was bound to be disabling The ulna should be kept straight and then the radius could be pushed back into position and held there When two bones were injured in a limb, the more important bone should be treated and the other left to look after itself In fractures into a joint there was great temptation to operate, because the skiagram showed severe distortion. Operation should be avoided unless realignment could be secured without much trauma; otherwise, nature aided by physiotherapy was more likely to produce good results

Mr. **Alexander Cruickshank** observed that fractures of the os calcis were neglected by most textbooks. The majority were comminuted and involved more than one joint It was exceedingly difficult to decide whether long fixation or early movement was the right treatment

Mr H. E. **Griffiths** said that the injuries of sailors had changed much in the last century. Non-union was extraordinarily rare, and sailors did not seem to undergo those fractures which usually failed to unite One of the chief difficulties was delay in treatment If the object of treatment were chiefly to return the man as quickly as possible to his work, then reduction might have to be dispensed with. The surgeon should decide what range of movement was necessary to the man's occupation and make its achievement his guiding consideration.

Mr C. **Hope Carlton** doubted whether there were any first principles of fracture treatment, and declared that much of the most successful treatment was empirical ' Surgeons were handicapped by the tyranny of the radiogram. They had always at the back of their minds the possibility that after a few months they would find themselves in the witness-box admitting that the injuries shown in the radiogram would be expected to cause the disability which the patient alleged. They were therefore compelled to try for the best anatomical alignment regardless of function. Fixation in dorsiflexion was the wrong treatment for Colles fractures. He had never yet seen a fracture of the femur below the lesser trochanter treated successfully in a heavy man of sixty. The upper fragment could not be moved without flexion and abduction, which caused great pain Böhler's method for fractures of the os calcis gave good and bad results in apparently similar cases, and he thought that the principles depended on instinct and experience rather than on mathematics.

Mr. A **Dickson Wright** said he found reduction much easier if he fixed the small part and moved the patient.

Mr. **Bristow**, in reply, said that the impaction which was always present in a fracture of the femoral neck made protection unnecessary. In a child the head of the radius must be replaced by open operation; its removal was a criminal procedure. When Böhler's method failed he treated fracture of the os calcis by subastragaloid arthrodesis, except in patients who developed for themselves a rigid subastragaloid joint. Treatment was not entirely empirical but was based upon mechanism.

NORTH WESTERN TUBERCULOSIS SOCIETY

On Jan 26 at the Manchester tuberculosis offices Dr. R. R **Trail** addressed this society on the

Limitations of Artificial Pneumothorax Treatment

As long ago as 1919, he said, Bardswell and Thomson had proved that something further than sanatorium treatment was necessary if we were to reduce the grave mortality from pulmonary tuberculosis which, under all forms of institutional treatment, leaves the average patient with at best a 50 per cent chance of relapse within three years. That was before the enormous possibilities and great accomplishments of treatment by pneumothorax were realised Bentley's monograph of 1936 on the experience of the L C C had demonstrated a plus of 19 per cent in the survival of institutional cases treated by artificial pneumothorax But in considering the end-results of treatment four facts must be kept in mind: (1) The results referred to those willing and fortunate enough to be treated in a sanatorium. (2) The patient with artificial pneumothorax has a definite advantage over his fellow patient because of continued supervision (3) Patients considered suitable for artificial pneumothorax are in a lower grade for prognosis than the average patient with evidently similar extent of disease. (4) All treatment is ultimately dependent on the prime factor of early diagnosis which does not seem to improve Recent investigations had shown that fully 60 per cent of artificial-pneumothorax cases so far treated had bilateral disease at the time of induction; we knew now that unilateral disease gives a far better end-result even with partial collapse than does complete collapse in bilateral cases. He deprecated the maintenance of pneumothorax when resistance was being undermined and cavitation was recurring, as a result our surgical wards are being asked to deal with many cases already beyond hope of a good surgical result. Whatever the successes of phrenic operations and cauterisation of adhesions, he was assured that even better results had been attained by surgery at an earlier stage. The dictum that pneumothorax must precede thoracoplasty was not of universal application; in three categories of patients surgery at the date of diagnosis might be better than any minor method of treatment · (1) Those with unilateral disease of fibrocaseous type, with or without cavitation, but with definite displacement of heart and mediastinum (2) Cases of upper-lobe pneumonic phthisis which have reached the stage of marked involvement of the interlobar pleura and subclavicular cavitation (3) Those with cavitation in the middle or lower zones of the chest, particularly if the cavities are in the inner third of the lung field.

REVIEWS AND NOTICES OF BOOKS

Avian Tuberculosis Infections

By WILLIAM H FELDMAN, D V M , M S , associate professor of comparative pathology, Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota London Baillière, Tindall and Cox 1938 Pp 483 31s 6d

UNDER the great personal influence of Robert Koch the belief was held for several years that the bovine tubercle bacillus was virtually non pathogenic for human beings It was not till after the investigations of the Royal Commission on Tuberculosis in this country and of various workers in the United States that this belief had to be abandoned The similar belief that the avian tubercle bacillus is non-pathogenic for man has not suffered a similar fate Dr Feldman, who has made a careful study of the literature, can find only 13 recorded cases of tuberculosis in which there is a reasonably high probability that the avian bacillus was responsible, and in this country Dr Stanley Griffith with his vast experience has never met with this organism in a single case of tuberculosis On the other hand, the avian bacillus is of great importance in infections of birds, and to a less extent of certain mammals such as pigs and cattle In fowls tuberculosis due to this organism is widespread throughout the world, and in the United States it seems that about 5 per cent of chickens are infected In pigs the annual loss from avian tuberculosis in the United States is estimated at about $2,000,000 In cattle the avian bacillus is uncommon and gives rise to only a retrogressive type of disease, but owing to the confusion it may cause in the tuberculin test it cannot be neglected

The importance of the avian tubercle bacillus is therefore economic as well as scientific and there is need for a comprehensive study such as this of the organism and the disease which it causes under natural and experimental conditions In a book dealing with so many different aspects of a problem it is difficult to avoid a certain amount of repetition, but in a future edition some overlapping might be prevented by dealing separately with the natural and the experimental disease in different animals The identification of the mammalian types of tubercle bacilli should either be described fully or not at all, the present account is unsatisfactory These, however, are small faults, and Dr Feldman's compilation will prove of value to workers in the office, the laboratory and the field

Insulin · Its Chemistry and Physiology

By HANS F JENSEN, Ph D , associate, laboratory for endocrine research, Johns Hopkins University, Baltimore London Humphrey Milford, Oxford University Press 1938 Pp 252 8s 6d

THIS book would be worth buying for its references alone, for it gives a fully indexed list of 1300 original papers, including most of the important work relating to insulin and its physiology which had appeared up to the beginning of 1938 There are, however, many other features to recommend it The style is unassuming and convincing, and the author keeps to the point and marshals his facts with enviable ease More of his personal opinions creep through in the earlier part which deals with the history, preparation, properties and standardisation of insulin than in the later part which is more concerned with physiology, but the physiology of insulin is a subject on which personal opinions have perhaps been expressed too freely elsewhere, and in which workers too often seem to read each other's papers unsympathetically Dr Jensen has assumed the heavy task of arranging the mass of physiological research in some sort of order and without prejudice There is a chapter on substitutes for insulin and another on methods of administration The latter is severely objective, in common with the rest of the book, and gives among other information the scientific background of the use of protamine insulin and zinc protamine insulin The clinical aspects of insulin are referred to only briefly as being outside the scope of the book, but those who are interested in diabetes from the purely clinical point of view will nevertheless find this review of the greatest interest and value

Textbook of Medicine

(4th ed.) By Various Authors Edited by J J CONYBEARE, M C , D M Oxfd, F R C.P , physician to Guy's Hospital, London Edinburgh E and S Livingstone 1939 Pp 1112 21s

THE principal alteration in this edition is the addition of a hundred pages on the psychoneuroses and psychoses by Dr Desmond Curran and Dr Erich Guttmann This has made the book a little more bulky but no dearer Certain "new" diseases have been added elsewhere and the whole text has been generally revised The book remains a middle-weight among textbooks of medicine, and a very serviceable work

Handbook of Midwifery

(10th ed) By SIR COMYNS BERKELEY, M D Camb, F R C.P , F R C S , F R C O G , consulting obstetric and gynæcological surgeon to the Middlesex Hospital, London London Cassell and Co [illegible] Pp 633 8s

SINCE *it was first published in 1906 this* little book has reached fifty seven thousand, and no more need be said of its utility For the pupil midwife the text is adequate, and for the medical student very nearly so The book can be quickly read, and forms a sound introduction to the subject. The text has been thoroughly revised and a few new illustrations added, and the sections concerned with [illegible] of domestic and personal hygiene, the management of the premature baby, and artificial feeding are now particularly satisfactory

Methods of Tissue Culture

By RAYMOND C PARKER, [illegible] associate in experimental surgery, Rockefeller Institute for Medical Research, New York. London Hamish Hamilton Medical Books. [illegible] 21s

IN this book Dr Parker [illegible] procedures used in Carrel's laboratory [illegible] Rockefeller Institute He discusses [illegible] and general uses of tissue culture [illegible] a tissue culture laboratory sh[illegible] equipment it should contain, [illegible] as cleaning, sterilis[illegible] preparation of [illegible] He then deals with [illegible] types of cultur[illegible] growth in [illegible] techniques [illegible] of tissue cu[illegible]

The book [illegible] the met[illegible] costly and [illegible] be app[illegible] appara[illegible] the other hand, this will be a valuable work of reference for experienced workers, for it contains a detailed account of many important special techniques which have not been published before. The descriptions of complicated methods are made easy to follow by their clear and logical style and some excellent photographs and line drawings

Textbook of General Bacteriology

(12th ed) By EDWIN O. JORDAN, Ph D , late Andrew McLeish professor of bacteriology in the University of Chicago. Revised by WILLIAM BURROWS, Ph.D., assistant professor of bacteriology in the University. London and Philadelphia: W. B. Saunders Company. 1938. Pp. 808. 25s.

THOUGH suited to the needs of ordinary medical students and students of public health this well-known American textbook is at the same time one of the best introductions to bacteriology as a branch of general science Since the last edition appeared its distinguished author, Dr. Jordan, has died, but in the present revision Dr Burrows has succeeded in bringing the book up to date without interfering with its characteristic qualities

Tabes Dorsalis

Klinische, erb- und konstitutions-pathologische sowie sozialmedizinische Untersuchungen. By Prof. Dr. F CURTIUS, Dr. H. SCHLOTTER and Dr. EDM. SCHOLTZ Leipzig: Georg Thieme. 1938. Pp. 275. R.M 14.

THIS monograph is one of a series on the social aspects of medical subjects, sponsored by the German ministry of labour. The authors have studied 101 cases of tabes dorsalis in war pensioners, and have amassed a truly remarkable amount of statistical and other details. Age, heredity, constitution, environment, family history, race and the effects of war service have been diligently recorded and each individual symptom and sign has been closely examined as to its statistical significance and its possible relationship to any or all of these factors Comparison has been made with the findings of other authors Where possible interesting clinical points are illustrated by photographs, and most of the statistical facts are clearly set out in tables Those who will face the task of separating the irrelevant from the relevant in this mass of information should be well repaid

Positioning in Radiography

By K. C CLARK, F.S.R , radiographer-in-charge, Ilford radiographic, technical and demonstration department. London: Ilford Ltd., William Heinemann (Medical Books). 1939. Pp 482. £3 3s.

THIS large book, which is intended for students of radiography as well as for practising radiographers, is made up of 32 sections, each dealing with one part of the skeleton, one organ, or one special method of examination such as pelvimetry, tomography or kymography. The method of presentation is to show photographs of a model placed in the appropriate position together with the actual radiograms obtained Where the projection is somewhat complicated the part is shown in section in a line drawing to explain the reason for using the particular technique. Alternative methods of examination are included, and the less experienced worker will appreciate the suggestions given concerning exposure factors and the difficulties that are encountered in certain abnormal conditions

It seems a pity that the author has omitted the innovators' names that are customarily applied to certain projections, though there is some justification for preferring a more informative description The statement that the preparation of a patient for an opaque enema calls for "frequent high colon wash outs" is not one that should appear without some reference to the patient's condition, if indeed it should appear at all Apart from these small points, however, there is little to criticise In the preparation of the 1300 illustrations the author has been able to call upon the resources of Ilford Ltd., and this happy collaboration has resulted in a book that will be valuable in every department where radiography is undertaken.

Diseases of the Nose, Throat, and Ear

By W. WALLACE MORRISON, M.D., clinical professor, department of otolaryngology, New York Polyclinic Hospital. London and Philadelphia. W. B. Saunders Company. 1938. Pp. 675. 25s.

DR. Wallace Morrison has had a long experience of teaching postgraduates, but he has written this textbook for both the undergraduate student and the general practitioner. It admirably fulfils its purpose In each section the surgical anatomy and physiology of the parts concerned are outlined; the common diseases are then dealt with fully and the rarer conditions more briefly Similarly, only the more simple operations are described at length The various stages of an operation are indicated quickly and clearly by means of diagrammatic drawings with a short descriptive text The book is illustrated throughout by pen-and-ink sketches drawn by the author, which are mainly amplified versions of the chalk drawings he uses in his lectures These are satisfactory as diagrams but are too rough to give the student a good idea of the appearance, for example, of disease of the larynx or fauces The work is thorough and accurate, though it repeats the unimportant but common error of giving the focal length of the concave head-mirror as 14 in, whereas it is really 6–7 in The advice given on treatment is sound, and the student and practitioner will find Dr. Wallace Morrison a straightforward and reliable guide.

Chemical Analysis of Foods and Food Products

By M. B JACOBS, Ph.D., chemist in the bureau of food and drugs, department of health, City of New York London: Macmillan and Co. 1938. Pp. 537. 25s.

THE author of this book is one of the more modern food analysts who is prepared to avail himself of the help which all branches of chemistry can offer to those who practise this important but in the past not very scientific branch of analytical chemistry. He has produced a readable and useful manual The first five chapters deal with general and physical methods of examination, colouring matters, and preservatives and metals in foods, and the next ten with examination of special groups of foods. The author then describes the determination of vitamins and various inorganic determinations, giving many very modern methods, such as the determination of sodium by the zinc and magnesium-uranyl methods Apart from a few slips and occasional sentences which need recasting the book is well written The author provides a useful bibliography at the end of each chapter and quotes copiously from publications issued inside and outside the United States. Although the references to legal enactments necessarily apply mainly to those of his own country, the general information, including tables of analyses of many products, will be valuable to all food analysts

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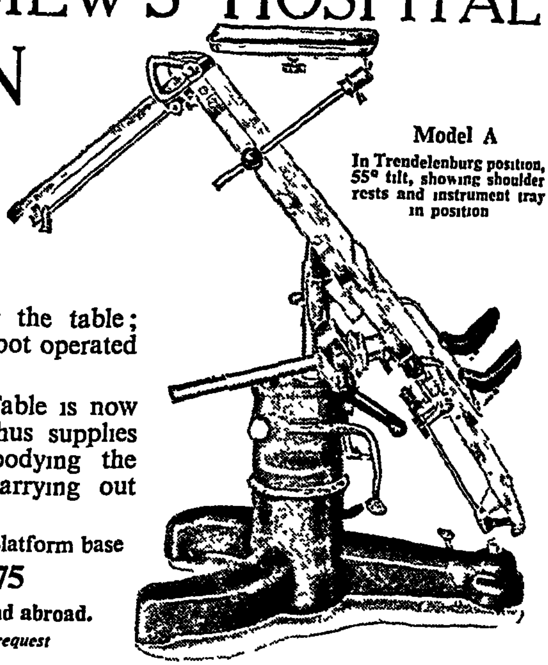

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[1] *British Medical Journal*, 1935, November 16th, p. 938

[2] *British Medical Journal*, 1938, January 15th, p 105.

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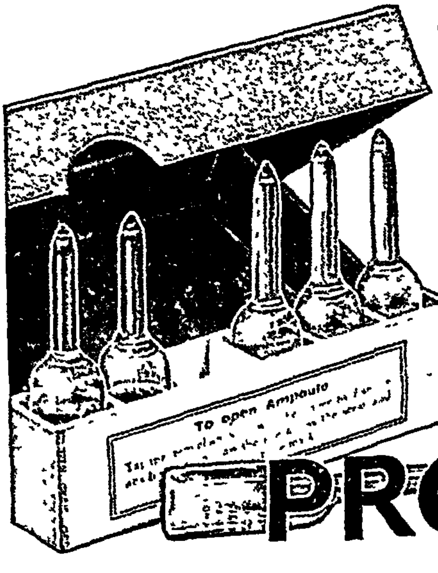

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[*See also pp. 24 & 35.*]

THE LANCET

LONDON SATURDAY, MARCH 4, 1939

PROPHYLAXIS IN WAR AND PEACE

THE Medical Research Council and their predecessors, the Medical Research Committee, have now been established for a quarter of a century They recall, in their report for 1937–38, the fact that in their first five years of life most of the efforts of their staff had to be directed to the solution of problems of war, presented mainly through the medical departments of the War Office and the Admiralty Indeed the early green-books on such subjects as surgical shock and hæmorrhage and wound infections observed under war conditions, and on rickets in Vienna during the post-war period, are now prized as classic works of reference After a period during which the demands for help from Government departments diminished, and the council were able to develop their own plans of medical investigation, official requests for inquiries have again in recent years become more numerous and exacting, and this type of work, of which examples are given on another page, has loomed larger in their programme, necessitating the permanent appointment of expert members of staff to cope with it During the past year the work has included various services of a technical nature undertaken at the request of the Committee of Imperial Defence and designed to make the resources of science available for the defence of the civil population Some of these activities are not detailed One of the plans outlined, however, will greatly relieve the anxiety felt by many of our profession lest no precautionary scheme against epidemics had been included among the preparations for evacuation of large sections of the population in an emergency It is now announced that last year the Medical Research Council were entrusted with the organisation of an emergency public health laboratory service to assist, in the event of war, in the protection of the civil population against the spread of epidemic infections under the abnormal conditions which might prevail The possibilities that had to be envisaged included large movements of population, especially as the result of evacuation from big cities, and dislocation of ordinary services of various kinds At the best it would take time to train adults and children to behave so as not to endanger their neighbours in such circumstances, and expert guidance will be essential if disasters are to be avoided

In these circumstances there appeared to be need of a much more widely spread laboratory service for bacteriological diagnostic work than at present exists A scheme was accordingly worked out for an emergency service which would augment the facilities already available under the normal public health administration It was based on the utilisation of bacteriologists and assistant personnel usually engaged in research work or postgraduate teaching, and of those in hospital laboratories who could be spared from their ordinary duties With the willing coöperation of the various authorities concerned the scheme was elaborated in detail, and arrangements were made for giving it effect without delay in the event of an emergency It is satisfactory to learn that the measures had been completed before the international crisis in September in districts where such provision seemed to be most required, and that they have since been extended to the remaining regions There is thus at least one section of the medical profession whose members know that their services in an emergency will be used to good advantage Such essential measures as the provision of a safe water-supply, the proper disposal of sewage, prophylaxis in overcrowded areas against enteric diseases, the identification of carriers, would certainly tax the resources of the public health departments of the districts receiving refugees Even where a bacteriological service is already established, the knowledge that it will be supplemented at need by highly skilled workers will be welcomed by all who have realised the havoc that disease could cause in a community suddenly transplanted from highly civilised conditions of life to primitive ones The good offices of the Medical Research Council have also been enlisted in the coördination of certain medical supplies to meet the requirements of the defence services and of the civil population in the event of war Action taken last year related particularly to substances, such as tetanus antitoxin, which might be required in quantities out of all proportion to the productive capacity of the manufacturing laboratories in peace time Estimates of the probable demand having been made, steps were taken to accumulate the necessary reserves for use at the outset, and also to ensure that means existed for rapidly increasing production These arrangements had also been completed, in respect of the most important substances, before September last

In view of these concrete services and the evidence throughout this and previous reports that the Medical Research Council are not merely an academic body promoting research into disease processes without concern for practical issues, their plea for the coöperation of the public in the application of new knowledge should receive earnest attention The swift spread of the use of any curative drug—for example the new chemotherapeutic agents—is contrasted with the delay in the application of discoveries in preventive medicine The council suggest that a better method of informing and educating the public has become imperative and that there is great need for some authoritative body to transmit the necessary information Surely this is a duty which could properly be undertaken by the local medical officer of health and his staff, immunisation against diphtheria, for example, is gaining ground in certain districts where facilities are not only provided but are well advertised and the coöperation of practitioners is enlisted. The Ministry of Health has urged local authorities to adopt prophylactic measures and would doubtless support any scheme designed to interest the public in their widespread use. Unfortunately, as the council point out, immunisation will not be completely effective in eradicating diphtheria until it is applied to all susceptible children in any community; but the example, quoted in the report,[1] of the town of Hamilton in Ontario, with a population of 175,000, where not a single case of diphtheria has been reported during the past five years, should stimulate progressive local authorities in this country to a campaign of persuasion. The unchanged dietary habits of the British people, in spite of the accumulated evidence of the nutritive value of the protective foods, are deplored by the council as another example of the failure to interest the public in preventive medicine. Admittedly the application of modern teaching on this subject is depressingly slow, but conservatism does not necessarily spell ignorance. The relative cheapness of carbohydrates and the child's taste for sweets may influence the proportion of the various foodstuffs consumed in a household whose head knows well enough that bread and biscuits and sugar are not now favoured by experts as substitutes for milk, butter, eggs or fruit There is truth, however, in the contention that preventive medicine lacks the dramatic quality possessed by cure of disease and that continued effort to keep the public informed of the ways in which they can take advantage of new knowledge gained in this field is a necessary step towards the improvement in the general health of the community and the elimination of disease. Not only public-health authorities but family doctors can help in this educational campaign. The first step is to rekindle their own enthusiasm and the best way to do so is by study of this dynamic report.

A PHARMACOLOGIST PROTESTS

"An unfortunate situation in the field of bacterial chemotherapy" is the title of a strong protest by E. K. Marshall[2] against the indiscriminate therapeutic use of new sulphonamide compounds before their experimental study is complete. Dr. Marshall and his colleagues were the first to carry out a thorough pharmacological study of sulphanilamide itself, in the sense of determining its rate of absorption, its distribution in the body, and its rate of excretion; hence no-one is better entitled to administer this reproof, if reproof be deserved He complains in the first place that tests of curative action have been performed with inadequate numbers of mice, and that investigators performing them make "no attempt to evaluate the significance of their figures or to analyse and test their meaning by even an elementary statistical technic." Another direction in which preliminary experimental work has been inadequate has been the study of toxicity; three reasons are suggested for the undoubted fact that toxic effects are more liable to be produced in the sick human being than in the normal animal, and it is argued that in view of this observation the study of toxicity in animals should be all the more thorough.

These criticisms are made without specific reference to any sulphonamide compound; indeed the only one mentioned is "2-sulfanilamidopyridine," and this for a somewhat different reason—namely, that "as yet no description of the substance has been published The proof of its chemical structure, analyses for purity and chemical properties are withheld" It is appropriate here to refer to another recent publication by Marshall and others[3] describing the results of a toxicological study of this drug. Although it has been said to have about "one fourth the toxicity of sulphanilamide," this statement is based only on the results of administering a suspension by the mouth, with no proof of complete absorption Marshall and his colleagues, by determining the blood concentration after various doses of such a suspension by the mouth, obtained results from which it is clear that absorption is far from complete On the other hand, when they prepared the sodium salt of this compound, which is much more soluble, its administration produced blood concentrations to attain which with 2-sulphanilyl-amidopyridine itself a dose as much as eight or sixteen times greater was necessary Judged by results with the sodium salt, this drug is not less but more toxic than sulphanilamide. They conclude by recommending that "until more is known about this drug, it should not be used in conditions where sulfanilamide has been shown to be effective" This is a transatlantic verdict on the most successful new sulphonamide compound produced in this country, and something of the same sort might be said of Uleron, which occupies a similar position and has had a similar career in Germany. It is therefore of interest in this connexion that Blaich[4] of Munster has made some new and disquieting observations on the behaviour of this drug in the body They are briefly that its excretion in the urine continues for five days after administration has ceased, and that the drug accumulates in the liver and spleen, with demonstrable damage to the former. Uleron has been used on an enormous scale, and occasionally produces toxic effects of several kinds which are not known to be caused by other sulphonamide compounds; it is astonishing that this important clue to the nature of its dangers should only now have come to light

It must be admitted that the general criticism made by Marshall has considerable force. Whatever the therapeutic results attained, it is unsatisfactory that a compound of this kind should be widely used before some of its elementary properties are understood—before, for example, it is known how much of a given dose will be absorbed Sulphanilamide is still the only one of these drugs for which full pharmacological data are available, and it is very desirable that the necessary patient and careful studies which alone can furnish such data should be pursued with other compounds **MARSHALL**'s concluding plea that the place and value of pharmacology in medicine should be more fully recognised is well supported by his evidence of the neglect of this subject in the bewildering developments of the past few years

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[1] And mentioned on p. 490 of our last issue

[2] Marshall, E K, jun, *J Amer. med Ass* Jan 29, 1939, p. 352.

[3] Marshall, Bratton, A C, and Litchfield, J T, jun, *Science*, Dec 23, 1938, p 597.

[4] Blaich, W, *Münch med Wschr* Feb. 3, 1939, p 171

A PROGESTATIONAL EFFECT BY MOUTH

THE capacity to evoke progestational changes in the uterus was originally thought to be specific to the hormone of the corpus luteum, progesterone, a substance which even now is available only in limited quantity and which is virtually inactive by mouth Later, however, it was found that certain methyl and ethyl derivatives of androgens, notably methyl testosterone, also had a progesterone-like activity, though this was only about one twentieth that of progesterone itself This result disproved the supposed absolute specificity of progesterone, but at the same time, since methyl testosterone differs from progesterone only in the absence of the short side chain, it emphasised the relative specificity of progesterone-like activity Moreover, any practical use of methyl testosterone based on this discovery was discouraged by the fact that the compound is a very powerful androgen

Last year an important advance was made by **INHOFFEN** and **HOHLWEG**,[1] who prepared the 17 ethinyl derivative of testosterone and produced a compound differing from progesterone only in the absence of the elements of water from the short side chain, and in the presence of an extra oxygen atom in the 17 position This compound, variously known as ethinyl testosterone, pregneninolone, and anhydrohydroxyprogesterone, was found by **INHOFFEN** and **HOHLWEG** to have progesterone-like activity one fifth to one tenth as great as that of progesterone itself Its most interesting and important property, however, was that, as tested on the rabbit, it retained its full progesterone like activity when given by mouth Since this compound possesses virtually no androgenic activity the introduction of what amounts to an orally active form of progesterone promised to be an important event in endocrine therapy Nevertheless, as pointed out in our columns last December,[2] experiments on oral activity carried out on the rabbit are not necessarily conclusive evidence as to the behaviour of the substance in other animals and particularly in man It is encouraging therefore to know that clinical results which indicate an oral effectiveness of pregneninolone in women are now beginning to appear Some results pointing to this conclusion have already been published by **CLAUBERG** and **ÜSTÜN**[3] and today we publish a paper by Prof **ZONDEK** and Dr **ROZIN** which shows that a number of effects they have been able to obtain by the injection of progesterone can also be obtained by the oral administration of pregneninolone (or, as they term it, pregneninonol) They find for instance that this compound, like progesterone, will induce hæmorrhage during the intermenstrual phase of the normal cycle, moreover, it appears that secondary amenorrhœa can be relieved by its oral administration even when no preliminary treatment with œstrogenic hormone is given

ZONDEK and **ROZIN** conclude that a dose of pregneninolone given by mouth needs to be about six times as great as that of progesterone given by injection But in view of the inconvenience of repeated subcutaneous injection for practical clinical purposes any technique that provides an alternative method must be considered favourably, and we shall watch the future developments of this work, particularly as regards substances with progesterone like activity, with great interest

MEDICAL REFUGEES

A MONTH ago we again put the case for a sympathetic attitude towards medical refugees[1] This case needed re statement because it appears that many doctors are showing an automatically negative reaction towards schemes for helping foreigners in this country Such schemes may be good or bad, but where they avoid injustice to our English colleagues they should, we believe, be given every possible chance of success

Our arguments have evoked two published criticisms—an article on Feb 10 in the *Medical World*, the organ of the Medical Practitioners' Union, and a letter from Dr G H **CRISP** which we printed on Feb 18 The burden of both is that general practice is an increasingly difficult means of livelihood and that many practitioners fail to secure a decent living In Dr **CRISP**'s view competition is now so keen that any talk of scientific or humanitarian ideals is out of place, and where the workers already in the field are finding the harvest so poor it is unfair to introduce new ones in the name of charity This is the dilemma considered last year in our columns[2] under the heading "An Overcrowded Profession?" —though at that time the chief complaint against refugees was that they congregated in overcrowded Harley Street The essentially competitive nature of private practice is generally recognised, it is again well brought out by a correspondent in our present issue All will admit, moreover, that good work often brings quite inadequate rewards and that a large proportion of doctors are now unable to give their children the kind of start in life they received themselves On the other hand at a time of high taxation these conditions are not peculiar to our profession, and to the outsider it appears unreasonable to talk of gross overcrowding in medicine when this is one of the few callings in which one can be almost sure of securing some sort of work and some sort of pay Nevertheless, even if the overcrowding is not so acute as it is sometimes considered, Dr **CRISP** makes a very good point when he says that the compassionate decision to admit a refugee may be excellent in theory but wrong in practice because it is made purely at the expense of a few neighbouring practitioners with whom the refugee will compete and whose opinion has not been asked. The *Medical World*, in its not unfriendly article, puts a similar case for the group of practitioners as a whole. why should the profession be generous at the expense only of a section of its members ?

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[1] Inhoffen H H and Hohlweg W, *Naturwissenschaften*, 1938 26 96

[2] *Lancet*, 1938, 2, 1308

[3] Clauberg C, and Üstün Z., *Zbl Gynäk.* 1938, 62, 1745

[1] "As Others See Us" *Lancet*, Feb 4, 1939 p 274

[2] *Ibid*, 1938, 1 931, 1022, 1082

> "General practice has already admitted a full quota, far more than any other organised calling. There are others who have done nothing. What *has the huge machine of government and municipal* medicine done ? We know of nothing. There are millions of inspections of school-children which might usefully be made. Why not set some aliens to this work ? There are short staffs all over the country, *over-work occasioned chiefly by A.R.P. legislation*, and by such scandals as that of our water supplies. Is there no room for aliens here ? "

The journal makes a constructive suggestion when it proposes that the Government should call a conference of the representatives of all the medical organisations and "tell that Conference what it, as a Government, is prepared to do in admitting aliens to its own services and in causing municipal bodies to admit to theirs " It would certainly be interesting to hear what advantage the Colonial and Dominion Offices are taking of the present supply of medical men and women ready to work in difficult circumstances among backward populations.

As regards private practice or other employment outside government services it may fairly be asked that doctors in all branches of the profession should judge each proposal on the facts. It may or may not be true that traditional professional ideas are outmoded, but it is certain that the nationalist theories now being imported into this country from abroad need at least as close a scrutiny as the refugees they have created, and we cannot help noticing that until recently, despite the overcrowding of the profession, little was said about cutting down the number of new entrants —who were not at that time foreigners There is a danger too perhaps that the extent of the immigration from Germany so far permitted may be exaggerated: the grand total, including 50 Austrians who are now going through a two years' course, is, we understand, not more than about 300, and this includes a group of medical psychiatrists, whose localisation is more or less controlled by the Home Office and who are not admitted to the Medical Register, and a substantial number of laboratory and other research workers who are not allowed to practise. There are something like 55,000 doctors in Great Britain, and the new immigrants cannot at worst be held responsible for more than a small proportion of their present discontents.

Dr. CRISP at the end of his letter suggests that "our academic idealists" should find a way to secure the services of refugees without jeopardising the incomes of overworked men. But he must be aware that for many of the refugees this has in fact been achieved; and we have reason to think that it could be done for more of them if the impossibility of such schemes were not so often assumed in advance.

ANNOTATIONS

BRIEF STORY OF ST. THOMAS'S

SOME may have found the weight of antiquarian detail in Prof Parsons's three-volume history of St. Thomas's Hospital heavy going, but no-one can make such an accusation against his delightful epitome[1] The earliest days of St Thomas's are still something of a mystery. In 1106 Bishop Gifford built a priory in Southwark for the Austin canons of the church of St Mary the Virgin In that priory a small room was set aside as an infirmarium for the sick brethren There is little doubt that the sick poor were soon invited to share the infirmarium, and a hundred years later four canons and three canonesses were required to look after them. Thus St Thomas's actually began before there was a St. Thomas, for the patron saint of the hospital until the reformation was not the apostle, but the English martyr In 1212 a disastrous fire destroyed almost the entire priory, and in his appeal for rebuilding funds Bishop Peter de Rupibus says: "Behold at Southwark an ancient spital, built of old to entertain the poor, has been entirely reduced to cinders and ashes " Peter's new hospital occupied a new site, and here St. Thomas's stood for 650 years, from 1212 to 1862. Prof. Parsons traces the story of St Thomas's up to the reformation, when Henry VIII confiscated its property and shut it down. One of its early benefactors was Sir Richard Whittington, the famous lord mayor, who added an eight-bed ward for unmarried mothers. It is said that Henry intended to refound the hospital as the Hospital of the Holy Trinity for sick and wounded soldiers, but he died too soon, and it was left to Bishop Ridley to persuade the boy king Edward VI that the needs of London's sick poor called for urgent action So the third St. Thomas's was built, this time dedicated to the doubting apostle. In 1552 the first lay surgeons were appointed and four years later the first lay physician. The early staff were not above seeking unprofessional help, and a certain Mother Edwyn used to be called in to treat ruptures and supply trusses Among the famous members of the early staff were the great Mead and Cheselden, of whom Pope wrote.

> "I'll do what Mead and Cheselden advise
> To keep these limbs and to preserve those eyes."

Mead was medical adviser to Thomas Guy, a governor of St Thomas's, and on Mead's advice Guy built his hospital on ground belonging to St Thomas's to harbour the incurables and lunatics whom St. Thomas's had to reject In Guy's will however he allowed his hospital to take other than incurables, so the second of the great Borough hospitals was born It was perhaps a pity that the two hospitals of growing south London should be side by side, and the forced removal of St Thomas's in 1861 to make way for the new London Bridge railway station was a blessing in disguise. The rise of Guy's had been associated with a decline at St Thomas's, but in its new home on the embankment the old hospital gained a new lease of life

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[1] Scenes from the Life of St. Thomas's Hospital By F G. Parsons, D Sc, F R C S Pp 39 1s Obtainable from the Appeal Office, St Thomas's Hospital, S.E 1

Prof Parsons ends his book with a brief tour of St Thomas's today, and in passing College House he reminds us that the residents' photographs include notorious as well as famous characters All old St Thomas's men should read this little book, and there is much in it to interest those who grew up in less venerable institutions

CARCINOGENESIS IN THE LUNG

How far the results of animal experiments on cancer can be interpreted as applying to man is a question raised again in a paper by Valade[1] The suggestion has been made by more than one observer that the apparent increase of pulmonary cancer in recent years is attributable to the inhalation of tar laden dust from the modern roads, and experiments on animals have been cited as supporting this It has been shown for example that application of tar to the skin of mice is often followed by cancer of the lungs, and Argyll Campbell[2] has succeeded in demonstrating that in mice exposed to an atmosphere contaminated with road dust there is a high incidence of these tumours Campbell suggests that his experimental results can be applied to man, or in other words that they indicate tar as the probable causative factor in cancer of the human lung, but Valade questions this He points out that mice are especially prone to spontaneous pulmonary cancers, and that their lung tissues are susceptible to carcinogenic agents Other animals do not necessarily have a similar susceptibility, in the rat, for instance, he found that intratracheal injections of methylcholanthrene in oil has no carcinogenic effect on the lungs Out of 50 rats which he subjected to this procedure 14 developed connective tissue tumours about the trachea and œsophagus, but none developed epithelial tumours of the bronchi or lungs, notwithstanding the fact that after the rats were killed crystals of methyl cholanthrene could be demonstrated lying in direct contact with their lung tissues Valade argues that if an agent so strongly carcinogenic as methylcholanthrene fails to produce pulmonary cancers in rats there must be great variations in the susceptibility of different animals, and we cannot assume that what is true for a mouse will also be true for a man

INFANT FEEDING IN CHINA

In an inquiry into Chinese methods of infant feeding carried out for the Henry Lester Institute at Shanghai, Platt and Gin[3] found that the great majority of the 400 babies investigated were breast-fed Wet nurses were employed in 30 cases, in 6 imported milk powder was used and one mother claimed that she had brought up her child on a food based on rice starch powder, entirely without milk The usual procedure in the breast fed baby is to give a solution containing some cathartic substance of native manufacture immediately after birth and again a few hours later This is intended to drive out of the body all the "heating" substances Breast feeding is begun on the second day A thin sweetened paste of rice flour or starch cake (if the family can afford it) is given once or twice daily In a few days' time if the supply of milk is adequate the child may refuse to take any additional food but most children continue to take small amounts of rice flour Breast-feeding when established is irregular, the frequency of feeds being determined by the baby's cry The infant is fed less often during the night, and some 8–10 feeds are usually given in the course of twenty-four hours There is no accepted time for the duration of a feed, which is usually continued until the baby falls asleep Mixed feeding begins at about five months with some preparation of soft rice, and vegetable soup is added after six months At about eight months a greater variety of soups are introduced together with egg, biscuit and oranges

The importance of feeding the mother or wet nurse adequately is thoroughly appreciated by the Chinese There are recognised rules as to the special foods required, and the mother is expected to consume a definite number of eggs as well as chicken, fish, soup and so forth shortly after delivery Even with the very poor every effort is made to fulfil the requirements of tradition Emphasis is laid on a sufficient supply of fluid, and when milk secretion is poor drinks of many kinds are prescribed A large number of substances have a reputation as lactagogues, such as mashed lean pork, a mixture of pork fat and cream beans, cuttle fish in the form of soup, shrimps cooked with red wine, and cooked sea slugs When an infant's requirements cannot be wholly met by the mother wet-nursing is often resorted to, and in most big cities there is a subdivision of a general servants' agency which provides wet nurses Apart from wet nursing the commonest way of supplementing breast milk is to give rice flour or starch cake powder two or three times a day In nearly a third of the babies breast feeding was discontinued by the end of the first year, but about half were still breast fed during their second year, and the commonest reason given for weaning was a fresh pregnancy From the European standpoint perhaps the most surprising finding of this inquiry was that in the 300 cases in which the indications for weaning were investigated "doctor's advice" was recorded in only one

SODIUM BICARBONATE IN DIABETIC COMA

Although during the last year or two surprisingly little has been written about the treatment of diabetic coma, it would be rash to infer that the last word has been said on the subject It is of course true that in most cases the response to insulin leaves nothing to be desired Yet from time to time the clinician still meets with patients who give him grave anxiety While delay in starting treatment is often responsible it is well to admit that other factors, at present unknown, may be concerned and to search widely for methods of reducing the mortality When the treatment of a disease is revolutionised in the way that the treatment of diabetes has been revolutionised by the discovery of insulin there is always a tendency to discard prematurely the older therapeutic weapons In the early days of insulin treatment, for instance little attention was paid to the extreme dehydration that attends diabetic coma, and it was several years before the importance of saline was recollected Elsewhere in this issue Dr Kirk suggests reviving another old remedy—namely, parenteral sodium bicarbonate—which was widely used in pre insulin days in the belief that the symptoms of coma were due to acidosis Although nowadays it is agreed that it is ketosis rather than acidosis that is the culprit, it does seem that the energetic use of sodium bicarbonate occasionally saved life during an era when diabetic coma was almost always fatal

The two cases related by Dr Kirk are therefore of considerable interest Nevertheless it is important to remember that sodium bicarbonate is a potentially dangerous drug There is always a tendency for the hydrogen-ion concentration of the blood to rise when insulin begins to restore the normal oxidation of fat, and injudicious use of bicarbonate during this period is apt to exaggerate the drift towards alkalosis. And alkalosis *is to be avoided, for three reasons:* it can rarely be recognised clinically; it is as difficult to dispel as it is easy to provoke; and it is sometimes fatal Another obstacle to the treatment is that solutions of bicarbonate cannot be sterilised by heat. Dr. Kirk is evidently alive to these drawbacks and the only object in underlining them is to make it clear that the indiscriminate use of sodium bicarbonate is likely to do more harm than good, especially where facilities for emergency measurements of the pH or bicarbonate content of the plasma are nót at hand. But the physician who, like Dr. Kirk, can command such facilities will no doubt be encouraged to try bicarbonate in cases where response to insulin is dangerously delayed

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[1] Valade, M P *Bull Acad Med Paris*, 1939, 121 115
[2] Campbell J A, *J Industr Hyg* 1937 19, 419
[3] Platt, B S, and Gin, S Y, *Arch Dis Childh* 1938, 13, 343

THE NEW SCHOOL AT NEWCASTLE

DURING their visit to Tyneside last week the King and Queen formally opened the new medical school attached to King's College, Newcastle, and made a tour of the building The school, which has been in use since October, is planned on the pavilion system, in three main blocks joined by a corridor The south block contains the dean's offices, the committee-room, and common-rooms for men and women students, with a café and gymnasium Above these are the physiological chemistry laboratories and lecture theatre The lower floors of the central block are taken up by the laboratories of the bacteriological and public-health departments On the first floor is the histological laboratory and demonstration-rooms and on the second the Sutherland Hall, a large room for examinations, the museum, and a well-equipped animal-house The north block houses the pathology department on the ground floor and the anatomical museum, dissecting-rooms and lecture theatres above The school now has 409 undergraduates, of whom 50 are women.

FAMILIAL PERIODIC PARALYSIS

SINCE the demonstration by Allott in 1935 of the diminution of serum-potassium during attacks of familial periodic paralysis our knowledge of the condition has advanced considerably. Some of the recent developments were referred to in these columns in August last.[1] During an attack of paralysis the affected muscles are entirely flaccid, and cannot be made to contract either by direct electrical stimulation or by stimulation of their nerve-supply. This fact seems to point to a peripheral rather than a central abnormality, and until lately the evidence suggested that the paralysis was due to an abnormal demand for potassium in the muscles of affected subjects Last year Pudenz, McIntosh and McEachern found that if potassium was injected intravenously the paralysis was relieved before the level of potassium in the serum rose, which is in agreement with the conception that the additional potassium is taken out of the blood-stream by the tissues suffering from potassium lack. They have now shown,[2] however, that if the venous return from one arm is prevented by a cuff at 60 mm. pressure the intra-arterial injection of potassium chloride in the affected limb does not produce any return of function On the other hand, if the circulation in one arm is completely cut off by a cuff at 200 mm. pressure, and potassium chloride is injected intravenously in the other, the occluded limb recovers as quickly as the unoccluded These experiments seem to show that a central factor is involved, but the creatinuria found by these Montreal workers, as well as by Ferrebee, Atchley and Loeb,[3] still seems more likely to be due to a concomitant muscular abnormality than to purely nervous influences. The choline-esterase level in the blood is normal during an attack, but recovery can be brought about without potassium salts by the intravenous administration of the choline esters doryl or mecholyl Under the influence of these drugs the serum-potassium level rises in the same way as it does in spontaneous recovery, suggesting that potassium is liberated from some organ or tissue and becomes available for use by the affected muscles At present there is no evidence as to the whereabouts of this potassium storehouse Whatever the eventual mechanism of the disease may turn out to be, it is clear that there is in affected subjects some metabolic abnormality affecting potassium, and the condition should probably be added to the growing list of inborn errors of metabolism.

CANCER CLINICS

A RECENT deputation to the Minister of Health expressed the hope that the proposed cancer schemes would utilise the facilities of the larger hospitals, voluntary and municipal, rather than lead to the establishment of special clinics not closely linked with general hospitals The deputation also asked for consultant facilities in the homes of patients On both these policies Mr. Elliot's reply was encouraging, subject to the advice given him by the medical advisory committee shortly to be appointed. For many reasons he thought it would clearly be desirable for a large and well-equipped hospital to serve the areas of more than one local authority At present, whatever the future may hold, the only practical methods of treatment for cancer are surgery and radiation Surgery in this country has definite standards, radiation has not; it is therefore necessary before framing a scheme of clinics to define the minimum requirements for adequate radiation therapy. X-ray apparatus should be available for all patients requiring it to be treated within a fortnight of being identified. Radium should be at the disposal of the therapist in such quantities as will allow him to treat any case with correct doses, using suitable containers Such treatment must be in the hands of fully trained radiotherapists and it is a question whether a diploma in radiology can in itself be considered as a full qualification; prolonged experience or a complete course of instruction at a recognised centre is also essential. In view of the expensive nature, in time and money, of this training the radiotherapist may expect to have the same status as the surgeon, notwithstanding the nature of the work requires a full-time appointment At present the number of fully trained radiotherapists is limited, and this fact has a bearing on the possibility of using effectively in the near future any considerable increase in the quantity of radium available. Despite any impression to the contrary given by the recent report (*Lancet*, Feb 18, p 403) there are already a number of large treatment centres where all forms of radiation are available in charge of a trained staff. In Manchester, for instance, this centre is attached to a cancer hospital, with adequate surgical service, and

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1. *Lancet*, 1938, 2, 443
2. Pudenz, R H, McIntosh, J F, and McEachern, D, *J. Amer med Ass* 1938, 111, 2253.
3. Ferrebee, J W, Atchley, D W, and Loeb, R. F, *J. clin. Invest* 1938, 17, 504

the steady increase in the number of patients there treated is due to agreements with local authorities and to the diagnostic stations staffed from the centre in municipal and voluntary hospitals throughout the region served by the centre In this way in the last completed year 29 per cent of cancer patients in the civic area (pop 1,039,740) and 26 per cent in the surrounding area (pop 1,663,860) actually obtained radiation treatment at the centre Assuming, as seems fair from figures given in the report, that at least a third as many received surgical treatment, it follows that no less than 40 per cent of all patients suffering from cancer in the Manchester area were treated—in contrast with the 27 per cent given in Dr Mackenzie's sampling inquiry He estimates that a quarter of all the cases have cancer in accessible sites The Manchester figures show that three quarters of the cases in accessible sites were actually treated by radiation at the centre Again allowing for the numbers submitted to surgery it follows that practically all patients in the Manchester area with cancer in accessible sites actually received treatment These figures lend point to the deputation's argument

LIGHT EYES AND GLARE

It has long been known that albinos, partial albinos, and people in whom the intra ocular pigment in the iris and retinal pigment epithelial layer is sparse are more sensitive to light than those more richly endowed in these structures It is said also that persons with lightly pigmented eyes see less well under low illumination than those with dark eyes, thus negroes are said to see considerably better at night than white persons De Silva and Robinson,[1] who report experiments on light sensitivity and visual adaptation at low illuminations, examined 1238 subjects, of whom they labelled 620 "light-eyed" (light grey, light blue or iris) and 618 "dark eyed" (dark brown or dark blue iris) The apparatus used was designed to simulate a night driving scene the observer was confronted with two glaring lights and was required to distinguish the direction of stripes painted on a rotating test object which had its own source of illumination, the threshold of sensibility being determined by increasing the illumination of the test object until the observer was able to distinguish correctly the direction of its lines The index of glare sensitivity was expressed in terms of the amount of light required to perceive the lines correctly, and the results supported the conception that light eyed people, at all ages, are relatively sensitive to glare and are unable to see so well under low illumination These facts have some practical bearing on driving vehicles at night when light-eyed drivers should presumably take special care

STERILISATION OF ARMY WATER-SUPPLIES

During the war of 1914–18 the sterilisation of water on a large scale by chemical means was introduced by the French authorities about the time of the battle of Verdun whence it became known as verdunisation In Bunnau Varilla's method lorries were used for purifying the water by both chemical and mechanical means—i e, chlorination and filtration Inherent disadvantages in these lorries have led to the design of a new type in the Spanish war Early in 1937 the Spanish republican army put into service some water sterilising lorries built in Holland, which chlorinated the water and filtered it through sand, eliminating the excess of chlorine with activated charcoal, but they lacked storage tanks for the sterilised water This type of lorry has been improved and is described by L Hormaechea, a Spanish engineer attached to the military sanitation service (*Rev Sanid Guerra*, June–August, 1938, p 336) Apart from delivering the purified water at a much greater rate than do other types, and having storage tanks on board, these lorries sterilise the water in a simpler way The water is drawn in with a centrifugal motor pump, about a fifth of it being passed through a chamber in which it receives and dissolves a dose of about 30 grammes of aluminium sulphate per cubic metre of water, after which it joins the rest of the water on its journey to the chlorinating tank Organic matter and particles in suspension are thus coagulated and entangled in the gelatinous precipitate of aluminium hydroxide which is formed $(SO_4)_3Al_2 + 3(CO_3H)_2Ca \rightleftarrows 2Al(OH)_3 + 6CO_2 + 3SO_4Ca$ Chlorination is done with hypochlorite, which decomposes into chlorine and oxygenates the water on its way to the sand filter, as it emerges it is tested with *o* tolidine for any excess of free chlorine This method does away with the need for activated charcoal The tanks and pipes of the installations on the lorries are insulated against changes of temperature with sheets of compressed cork to prevent its freezing in cold weather and becoming unpleasantly lukewarm in hot weather

THE HOSPITALS IN EMERGENCY

The Minister of Health is now responsible for the proper use of hospitals in time of war, and besides appointing twelve "hospital officers" to prepare and execute regional schemes he has secured the advice of consultant specialists nominated by the presidents of the colleges of the physicians and surgeons His plans are outlined in a memorandum just published,[1] and in the next few weeks all the hospitals implicated will be told what is expected of them The Government does not intend to interfere in their internal management—unless they are to be exclusively used for the military services—but it will make arrangements about the cost of maintaining casualty cases and the cost of alterations and equipment The hospitals are to be divided into classes according to their proposed function, and some of them will be "affiliated" into groups so as to render mutual assistance and facilitate the transference of patients The larger institutions which have—or can readily be given—facilities for treating surgical and medical casualties will be prepared for that purpose besides general hospitals these include certain sanatoria, the larger infectious diseases hospitals in areas that will be evacuated, and special hospitals able to undertake general work Where necessary such institutions will be "up graded" by providing them with appropriate equipment, and if they are in danger areas this equipment will ordinarily be supplied in advance

On an emergency arising all the hospitals concerned would at once be cleared of those patients that can go home—private cars being used for transport Selected general hospitals in danger areas—the principal casualty receiving hospitals—will then be further cleared by sending movable patients by ambulance train or motor coaches to affiliated institutions in the outer areas As a hospital becomes mainly available for the immediate reception of casualties its staff will generally be reduced, for the number of beds in use in danger areas will be kept as low as possible

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[1] De Silva, H R and Robinson, P, *Science* 1938 89 299

[1] Emergency Hospital Organisation Emergency Services Memo No 2 (England and Wa
Stationery Office Pp 20 6d

(not more than 200) though any others in the building will remain ready in case of extreme need Smaller hospitals will be employed chiefly for outpatient casualties, and may become mere first-aid posts *Hospitals unsuited by position or character for* receiving casualties will mostly be used for convalescent or chronic cases, and they are of less immediate importance than the casualty-receiving hospitals; thus even if they are in danger areas it will not be possible at first to remove those of their patients who are too ill to go home

In districts where children will be billeted infectious-diseases hospitals will retain their usual function, and the special facilities of other special hospitals will not be ignored Maternity hospitals or wards will be maintained as such so long as they are still needed, but children's hospitals in the danger areas will immediately be converted to the use of casualties Most mental hospitals will merely be expected to *rearrange their inmates so as to clear a wing or block* for casualties, but a few selected ones will be cleared completely, their patients being taken elsewhere Psychoneurotic casualties will if possible be dealt with separately from the others · they may be admitted to the casualty-receiving institutions, to which a neuropsychiatrist will usually be attached, but special intermediate hospitals, with neurological clinics, will be organised on the fringes of the central areas and mobile teams of neuropsychiatrists will also be formed There will likewise be mobile surgical teams that can be sent to points of exceptional pressure

"Affiliation" of hospitals in groups is meant to facilitate the necessary spreading of the skilled personnel and equipment which in peace-time are concentrated at a comparatively small number of institutions The general idea is that hospitals in the inner (or especially threatened) part of each district should evacuate their patients to affiliated ones in an outer (or safer) zone. In London, and possibly one or two other large cities, the plan is carried further by dividing each district into segments, radiating from the centre, the casualties being evacuated outwards towards the "base hospitals" at the periphery, which will have a senior and more experienced staff Each group of hospitals will be expected to work out schemes in advance by which the personnel is divided into teams allocated to specific hospitals, and each group is to appoint a responsible "group officer" to represent it in time of peace and to retain responsibility for the organisation of the group in time of war—subject to the direction of the Ministry's "hospital officer" for the region, who will receive regular reports and will collate the work of groups. The arrangements proposed for supplementing staffs have already been described,[2] but are again briefly set out in the memorandum, together with preliminary observations on finance, proposals for record-keeping, and a short account of the various steps to be taken as an emergency develops. To minimise an inevitable run on materials at the beginning of a war all hospitals are asked to keep at least a month's normal supply of drugs and dressings, and some will also be asked to serve as depôts for Government supplies Some have already been invited to store bedsteads, bedding, and other equipment provided by the Government, and arrangements for distributing about 80,000 bedsteads are known to be in hand It is estimated that the plans envisaged would provide a total of about 300,000 beds for casualties in England and Wales, of which about 200,000 would be available within twenty-four hours. Half of them would be "first class surgical beds" But since even this might not suffice the Government is exploring the possibilities of *using additional* buildings to expand hospitals in the danger areas and of erecting huts for the same purpose

B.C.G. IN RUMANIA

ADMINISTRATION of B C G. to babies has been done on a large scale in Rumania for some dozen years; it started on the initiative of the late Prof Cantacuzène. Prof Marfan[1] reported to the French Academy of Medicine on Feb. 7 that the number of persons who have now had the vaccine is nearly half a million As he pointed out, B.C G vaccination is not compulsory in Rumania, but *it* has been very well received, thanks partly to the favourable conditions under which it was introduced Originally given by the mouth, the vaccine will in future be *given more and more by the* subcutaneous route with which tests carried out in the Rumanian army have been encouraging. The main conclusions that the Rumanian medical profession has reached are that B.C.G. vaccination is harmless, that it appreciably reduces the tuberculosis mortality among children—notably among those who live in contact with cases of tuberculosis during the first three years of life—and that the tuberculosis morbidity is also reduced. At present about 70 per cent of the babies in Bucharest are given B.C G at birth under conditions calculated to facilitate follow-up studies. The tuberculosis mortality during the first year of life is said to be 1·3 per 1000 among the B C G. babies, compared with about 4 per 1000 among the others. In the second year of life, the corresponding figures are 0 9 and 3 respectively, and in the third year of life they are 0 4 and 2 There does not however appear to be much improvement in the general infant mortality in Bucharest where the rate is 167 per 1000 Among the B C.G -vaccinated babies it is 153

In the competition for designs for the rebuilding of St. George's Hospital that of W. H. Watkins and Partners was placed first The plans of the first five designs will be on view to the public at 15, Knightsbridge, S W., from *10 A.M. to 5 P.M* daily except Sunday until March 11.

THE LANCET 100 YEARS AGO

March 2, 1839, p 825

From a lecture delivered at the College of France by Monsieur Magendie.

. . . Many a drug has owed its vogue and pretended efficaciousness to errors which the habit of observing can alone ensure us from committing You try a new mode of treatment, your patient recovers: are you quite sure that the supposed complaint really existed? There is not an old woman without her formula against rabies, and many intelligent and conscientious persons will *tell you* of individuals who, after having been bitten by mad dogs, made use of certain drugs and recovered Recovered from what, if the dogs were not diseased? . . . *A certain medicine appears to succeed today, and in fifteen days* hence it will fail when exhibited under the same circumstances; some persons would not hesitate to attribute the failure to the state of the *medical constitution* But this, and similar methods of evading contradictory facts, are mere *ignes fatui;* with their aid we have explanations for everything, and need never fear being caught in a difficulty.

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[1] Marfan, C, *Bull Acad Méd Paris*, 1939, 121, 176

[2] See *Lancet*, Feb. 18, 1939, p. 424.

SPECIAL ARTICLES

MEDICAL RESEARCH COUNCIL

REPORT FOR 1937–38[1]

In the introduction to their annual report the edical Research Council contrast the speed of the plication of new methods of cure with the regrettable lay in the application of knowledge in preventive edicine, giving cogent examples in the neglect of phtheria prophylaxis, of modern views on dietetics, d of breast feeding Though they emphasise that eir own function is the promotion of discovery ther than its application, they are necessarily terested in the enlightenment, education, and udance of the public and deplore the fact that t does not seem to be anybody's business in this untry to undertake this task "

The research policy of the council, here briefly tlined, is that indicated by Sir Edward Mellanby in s Harveian oration (*Lancet*, 1938, 2, 929) the imulation of investigations by groups of workers a broad basis—for example, of virus diseases, docrinology, or chemotherapy—rather than of rticular diseases Encouragement is given alike to e direct study of disease and to that of the fundaental sciences, though at the moment, in view of e comparative dearth of work in these subjects, nical science and experimental pathology are voured But the council ' send out fleets in several rections and in different seas, hoping that individuals will seize any special prize of discovery that ows itself in any quarter "

The planning and carrying out of

Investigations for Government Departments

ve come to occupy more and more of the time th of the administrative staff of the council and of eir expert technical staff

Tropical medical research was gladly undertaken, the instance of the Colonial Office, since it clearly fered unequalled opportunities for discoveries and r their application in raising the standard of health countries for which Great Britain has a special ty and responsibility In the three years since the heme was initiated 8 junior and 3 senior fellowships ve been awarded for the training of investigators, d fully trained investigators have been sent to the ambia, Uganda, and Tanganyika Territory to study e action of chemotherapeutic drugs on sleeping ckness, the natural history of yaws, and other roblems

Nutritional problems in the colonies—The council ve appointed, for a period of five years in the first stance, a small staff to undertake the scientific ordination of a series of field surveys of diet in lation to health and physique in the colonial territories The actual surveys are to be made by ficers seconded from the colonial service in each rritory Dr B S Platt has been appointed head f the unit, which will coordinate the inquiries and sure the adoption of comparable methods and andards in the different territories and the uniform terpretation of the complete results Dr Platt has w gone to Nyasaland to start a comprehensive vestigation involving dietetic, nutritional, agriultural, anthropological, and social studies It is ped that an important development of this scheme ll be the greater encouragement of the production f food crops for improving the physical and mental ndition of the population Dr Platt has already en able to confirm the curative properties of nicotinic acid in pellagra among the maize-eating population

Chronic pulmonary disease among coalminers—Coalminers are subject to disabling chronic pulmonary disease which resembles silicosis clinically but not radiologically The economic importance to the workers of the distinction is that whereas silicosis is a disease allowing compensation, no such claim is allowed ordinarily to those who develop other forms of chronic pulmonary disease Whether this condition, when disabling, should be scheduled as an occupational disease under the Workmen's Compensation Act along with silicosis is an administrative problem outside the province of the council but at the request of the Home Office and the Mines Department an investigation has been undertaken into its origin, symptoms, and radiological manifestations Dr E L Middleton of the Home Office is responsible for the coördination of the research of a team of workers, under the control of Dr P D'Arcy Hart, which includes medical men, chemists, physicists, statisticians, geologists, and mine inspectors, the mine owners and the workers themselves have given wholehearted cooperation A particular colliery in the anthracite coalfield in South Wales was selected for intensive study, all the workers being examined in order to obtain better knowledge of the incidence of pulmonary lesions, grave and slight, and the environmental conditions in the pit have been closely studied The observations were concluded in March, 1938, and hundreds of case records and X-ray photographs were then analysed and compared in order to determine further lines of inquiry Several pits of different types have been selected, some with a high, others with a low, incidence of pulmonary disease among their workers Investigations at these collieries will be restricted to special studies in regard to certain classes of occupation The council add a reminder that research of this kind is necessarily slow, and cannot be accelerated

Physical exercise and the public health—In connexion with developments arising from the Physical Training and Recreation Act, 1937, the council point out that little is known as to the physiological basis of the processes underlying the feeling of well being or of the mechanism of improved physique and health resulting from exercise in the healthy person Training in various exercises and sports is still largely based on empiricism, and the deleterious effects which may result from unsuitable forms of physical activity require analysis In man, as in animals, physical exercise is closely related to nutrition, the different nature of the food eaten by races living under otherwise similar conditions explains at least some of the differences between them in activity, vitality, physical condition, and state of health In order to provide a *scientific basis for the national physical training* movement, the council have consented to advise the Board of Education on investigations concerning the effects of effort, repose, diet, and growth in man, also on experimental research which might appropriately be carried out at universities and teaching hospitals To this end a physical exercise research committee has been appointed under the chairmanship of Sir Henry Dale The committee have already considered the accommodation and facilities required for the teaching of physiology and anatomy at the proposed National College of Physical Training They have also collaborated in drawing up a form of standardised medical examination—to be used especially in the case of students at universities—which would provide a comprehensive record of their physical condition The main work of the committee, however, will be to advise the council on matters relating to the planning and initiating of investigations on questions of physical exercise and its relation to health

The systematic study of the *toxicity of industrial solvents* was undertaken by the council at the request of the Home Office Various volatile organic substances, when used in industry on a large scale or in enclosed spaces, may result in serious illness or even death; moreover, a slow toxic effect may result in some chronic disabling disease after prolonged exposure. The committee set up to initiate and control investigations on this subject have arranged for a summary of all the relevant literature by Dr Ethel Browning, which has been published, and for experimental studies at the Chemical Defence Research Station, Porton, by Wing-Commander T. J. McClurkin, who has worked in close collaboration with Prof. G. R. Cameron. During the past years, studies have been made of toxicity of the solvents methylene dichloride and ethylene dichloride, and of the substance methyl mercuric iodide, and toxicity tests of new organic solvents introduced into industry will be carried out at an early stage

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[1] London H M Stationery Office Cmd 5939 1939 Pp 206 3s. 6d

Other investigations undertaken by the council at the request of Government departments include those into the infestation of houses, old and new, by bedbugs, the vitamin content of canned food; copying pencils, with the object of finding a type of lead which is innocuous when lodged beneath the skin; and eyestrain in industry and means for its prevention. Throughout the past year the council have also been engaged, at the request of the Committee of Imperial Defence, in the organisation of important medical and scientific services of an emergency nature The cost of these services is separately provided

Other Research in Progress

TREATMENT OF CANCER BY RADIUM

Until recent years clinical research centres were investigating only the effects of the "interstitial" and "surface" methods of treating cancer. Treatment by means of the rays from a large mass of radium situated at a distance from the patient was started in London in 1933 During the first four years the Radium Beam Therapy Research, conducted under a special governing body, was restricted to cases of cancer of the mouth, tongue, pharynx, and larynx The results have been encouraging, though most of the patients were in an advanced and inoperable stage of cancer. It is noted that the patient with cancer undergoing radium beam therapy cannot expect to escape a period of some discomfort during and immediately after the treatment New technical methods which have been elaborated as the result of close coöperation between physicists and clinicians in this research are being widely used as models at other centres. The research is being extended at least until the end of 1939 The method is capable of destroying accessible primary growths, and, after a course of irradiation from a 5-gramme unit, the secondary growths in the neck usually disappear but, if present in the chest, they escape destruction. Work has recently been begun with a 10-gramme unit, and it is proposed shortly to make a comparative study of the relative values of radium beam therapy and of high voltage X rays in the treatment of cancer. The new work on the biological effects of neutrons has not escaped attention, nor the possibility that both radium and X rays will be superseded by the cyclotron in the treatment of cancer. Dr. F. G Spear, of the council's staff, is at present in California, working with Prof E. O Lawrence who discovered and developed the cyclotron.

RECENT WORK ON HORMONES

Among the important discoveries made during the year that of the synthetic œstrogen diethyl-stilbœstrol by Dodds, Lawson, and Robinson has pride of place. Although it has some structural resemblance to the natural female hormone, œstradiol, it is considerably more active, and is effective even when taken in small quantities by mouth.

This synthesis raises the hope that the properties and actions of some other hormones may eventually be reproduced by substances of a simpler chemical nature and more easily made than the natural products. Mr. A. S. Parkes, Sc D., and Prof. E. C. Dodds have demonstrated that diethyl-stilbœstrol taken by mouth inhibits the changes of the uterus which precede gestation and thereby prevents or interrupts the implantation of the fertilised ovum in the uterine mucous membrane In view of the implications of these studies, which are still in the experimental stage, the council point out the possible detrimental effects and even dangers attached to the use of œstrogens and their synthetic derivatives for such purposes In inhibiting the progestational changes, they are capable, if given in excessive doses of causing tremendous œdema and hyperæmia of the endometrium of the uterus. The remoter effects of excess of such substances on the activities of the anterior-pituitary lobe are under investigation.

Miss Ruth Deanesly, D.Sc, and Dr Parkes, working at the National Institute for Medical Research, have found experimentally in animals that a simple and effective method of producing prolonged action of certain hormones is to insert them under the skin in the form of crystals or compressed tablets. In this form the substances are absorbed at a very slow rate and the effect of the one tablet or crystal may be sustained for months or even years The exact amount of hormone used can be determined after any length of time by removal of the crystal or tablet and weighing Experiments have been made with œstrone, œstradiol, testosterone, and testosterone propionate, and others with progesterone and diethyl-stilbœstrol are in progress Dr. P. M. F Bishop has found clinically that a small tablet of œstrone relieved menopausal symptoms in a woman over a period of weeks There is no evidence that the hormones of a protein nature, such as insulin, can be given in this form with advantage

In the course of an attempt to induce immunity in dogs to the so-called "diabetogenic" action of extracts of the anterior-pituitary gland Mr. F. G Young, Ph D., has succeeded in producing a condition of diabetes which continues permanently without further injections

The pituitary extract was injected daily and at first some tolerance was established but, with progressive increase of the dose, the tolerance disappeared and large quantities of sugar were passed in the urine even when no further anterior-pituitary injections were given. The islet tissue in the pancreas of these dogs shows changes varying from slight abnormality up to practically complete loss of cellular structure. Further evidence that the extracts of anterior-pituitary gland produce diabetes in dogs by suppressing the functional activity of the islets of Langerhans has been supplied by Prof. C. H Best and his co-workers at Toronto. A detailed study of the metabolism of these diabetic dogs on (*a*) a high protein diet, (*b*) a diet rich in carbohydrates, and (*c*) one consisting almost entirely of fats throws fresh light on the relation of diet to the diabetic condition

It is not yet certain whether the anterior-pituitary extract acts primarily by raising the threshold of sensitivity of the tissues against insulin or by a direct effect on the islet cells or by both mechanisms.

UNIT FOR SURGICAL RESEARCH

The new unit for clinical research in surgery at Edinburgh, under the direction of Mr. W. C. Wilson, has suffered the loss of a keen and experienced guide by the death of Sir David Wilkie, but the facilities he provided and the spirit with which he endowed his collaborators will endure.

The investigation of burns and scalds and the healing of wounds caused by them will be continued; further chemical fractionation of damaged skin is being attempted and growth factors in skin are being studied. Experiments on the effect of acetylcholine on the excitability of the cerebral motor cortex are in progress. Circulatory disturbances in the limbs following injury, normal and abnormal sweat secretion, the relation of the thymus gland to creatine metabolism, and the renal function of children after severe pneumococcal infections are being studied by various workers.

The council note the vast opportunities for experimental investigation into problems associated with surgery and express the hope that research will be extended to the study of the causes especially of morbid conditions of the digestive system.

THE PHYSIOLOGICAL ACTIONS OF ALCOHOL

The council draw attention to the revised third edition of the book "Alcohol: its action on the human organism" which has recently been issued under their auspices. It gives not only the results of ad hoc scientific investigations but also an impartial account of experimental and clinical data as to the actions of alcohol.

The depressant effects of alcohol upon critical judgment and neuromuscular coordination have a bearing on the causation of road accidents; some psychological experiments are discussed relating to the effects of different amounts of alcohol on the skill and initiative of motor-drivers. A review is given of recent work on the lowest concentration of alcohol in the blood which may be incompatible with the safe control of a motor vehicle. The sections of the book relating to the bodily effects of chronic alcoholic intoxication refer to recent work, mainly American, on the parts played by nutritional deficiencies in causing certain of the symptoms. "Alcoholic neuritis" is now regarded as a nutritional disorder depending on deficiency of the B vitamins, and especially of vitamin B_1, in the alcoholic's diet. Other morbid effects of chronic alcoholism, notably the gastric changes and the "alcoholic heart," may also be due at least in part to vitamin-B_1 deficiency.

Alcoholic neuritis sometimes responds quickly to adequate doses of the vitamin, but clinicians in this country have rarely been able to obtain such dramatically rapid cures as have been reported in America.

EPIDEMICS IN SCHOOLS

During the year an interim report on an inquiry into the prevalence and mode of spread of minor epidemics in residential schools was published.

One of the results obtained from analysis of the data was that the incidence of nasopharyngeal infections such as influenza, colds, and sore throats, upon boys and girls with or without tonsils did not differ. There was evidence that in selected cases the operation is of value, but not that there is any justification for a ritual now practised upon more than 50 per cent. of the children admitted to public schools.

Noteworthy differences of incidence between boys and girls with respect to certain illnesses were brought out. Boys suffer twice as frequently from middle-ear disease, two and a half times as frequently from pneumonia and eleven times as frequently from acute rheumatism. This may be a real sexual difference, but it may in part be due to a stricter supervision of girls, earlier isolation of the sick and less close contact in bedrooms.

The report provides the general reader with an account, based upon an adequate sample, of the kind of information which schools can give, and enables him to judge what contributions to knowledge of hygiene and general epidemiology may reasonably be expected from this source. The responsible committee are continuing to collect sickness records from 13 schools (9 boys' and 4 girls'). Some of these have suffered from persistently high attack-rates of certain diseases, such as rheumatism, pneumonia, and various infectious fevers, while others have shown persistently low rates; further observation should show whether these differences remain constant or were due to chance. The committee have taken steps to obtain sickness records from a certain number of co-educational schools, where boys and girls share a common environment, and receive the same treatment when ill.

STATISTICAL METHODS IN MEDICAL RESEARCH

All the purely statistical work financed by the council and most of the statistical work undertaken by the medical staff of the Ministry of Health now comes under the notice of the statistical committee as a whole or of members of it, and an important fraction has its origin in recommendations of the committee, over which Prof. Major Greenwood presides. In addition, the opinion of the committee is habitually sought on statistical questions—whether of technique or interpretation—incidental to other investigations. The work of the committee has been heavy and at times invidious; there is a risk that statistical criticism or advice may excite in other research workers something of the irritation or perplexity which a professional opinion upon a difficult point in law sometimes produces in a layman. The statistical committee have sometimes passed reports of which the technical statistical standard would not be regarded by professional statisticians as satisfactory, but of which publication is justified by the novelty and interest of the subject matter. During the past seventeen years many valuable reports of a statistical kind have been published which no journal could have printed, and the system adopted for their scrutiny has done much to ensure the accuracy and intelligibility of their presentation.

NEW BUILDINGS FOR THE NATIONAL INSTITUTE

The proposed migration of the National Institute for Medical Research from Hampstead to Mill Hill was recorded in last year's report. Plans have been approved, and a beginning was made with the work of construction, which will take two years, last August. The new National Institute will provide accommodation for the central laboratory for research in chemotherapy, arrangements for which are being gradually developed. In view of the fact that the nutrition laboratory at Mill Hill will now occupy a relatively subordinate place, instead of being one of the chief buildings on the site, it has been decided to use the fund subscribed for a memorial to Sir Walter Fletcher for the provision of a hall for meetings and lectures at the new institute. The council have agreed to meet the whole cost of the nutrition laboratory, which was to have been the memorial, from their own funds.

(To be concluded)

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

MEDICAL CURRICULUM

At a debate at the Edinburgh University Union last week undergraduates took advantage of the opportunity to say what they thought of medical teaching. Prof. Stanley Davidson, in summing up the debate, laid stress on the need for reorganising dispensary practice, and said that more time should be given to the teaching of medical psychology, child life and health, and infectious diseases Arrangements for a period of residence in hospital were particularly important, and the teaching of minor surgery should be amplified Under the new curriculum the summer vacation would be used to increase the amount of clinical teaching. More individual clinical instruction was needed, but the real problem was that there were too many students for the amount of material and the number of teachers available This could be corrected by limiting the number of students and by increasing the clinical facilities in the municipal hospitals, as was done at present in Edinburgh Since the fees paid by students covered only a small portion of the teaching expenses, the cost of additions to the teaching staffs would have to be met either by raising the fees or by additional Government grants.

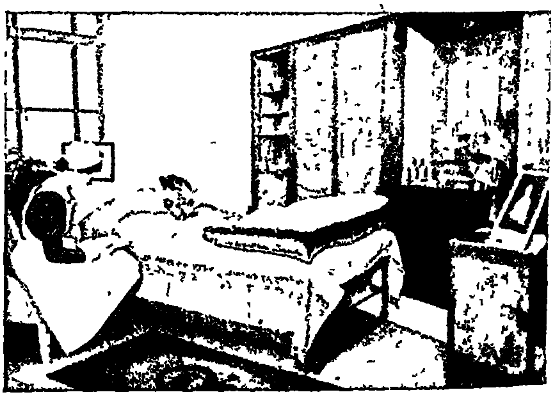
ROYAL MEDICAL SOCIETY

Prof R M Johnstone, senior president, presided over the annual dinner of the Royal Medical Society last week.. Sir Joseph Barcroft was the guest of the evening, and the other speakers were the junior presidents, Dr D. A C McRae, Dr R B. Hunter, and Dr P E Brown, the presidents of the Royal College of Physicians and of the Royal College of Surgeons, and Dr. G. J. Linklater. There was a large gathering of both active and senior members, who enjoyed the brilliant and entertaining speaking which is usually heard at this function. The presidents may be warmly congratulated on the success of the 202nd session.

EXTENSIONS TO EDINBURGH ROYAL INFIRMARY

On March 1 the Simpson Memorial Maternity Pavilion and the Florence Nightingale Nurses' Home were opened for the reception of patients and nurses, though their formal opening will take place later. These buildings occupy the site of George Watson's College which stood alongside the gynæcological block of the Royal Infirmary.

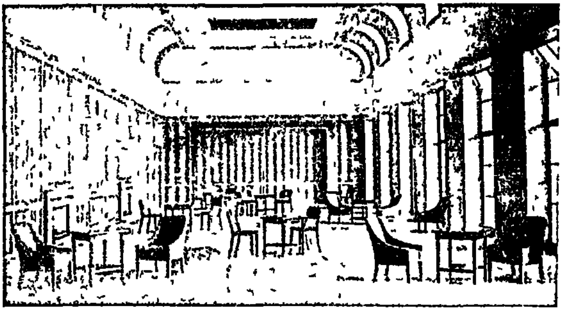
The new maternity pavilion replaces the Royal Simpson Memorial Maternity Hospital, whose accommodation had become inadequate after an honoured career of sixty years, and which was taken over by the Royal Infirmary in 1930 Soon after the patients are transferred a banquet will be held in the old hospital, at which the staff and former residents will say a suitable farewell to the institution The Pavilion is a five storied building built round an open rectangular square. To the south it overlooks the Meadows, an open municipal park, and its southern balconies command a fine view of Arthur's Seat and the Pentland Hills. The pavilion contains 122 beds, of which 30 on the ground floor are for antenatal work. Normal cases are accommodated on the first, second and third floors, and these constitute three charges, each with its own chief and staff. The top floor is an observation ward of 20 beds and is a self-contained unit with a separate lift and staircase. The delivery wards for the three main charges are all on the north side of the first floor. Here the building is only two storied, thus providing ample air and light to every room. Each charge contains 2 six-bedded wards, 4 two-bedded wards and 4 single wards All the wards and nurseries have south verandahs which can accommodate all the beds The beds of each floor are distributed in two groups in wings which project to the south. These are connected on each floor by corridors off which open the nurseries, infants' bathrooms, milk kitchens, service kitchens, sisters' and doctors' rooms, work-rooms, lavatories and so on. Here also is a special dark room for the treatment of eclampsia. The nurseries are air-conditioned and are divided into three sections for healthy, sick, and premature infants. The temperature and humidity of each section can be separately controlled Each half of the pavilion is served by separate lifts and staircases, so that in the event of infection only half of the floor need be closed.



Scotsman

FIG. 2—A nurse's bedroom

The antenatal section is designed to afford quick reception and evacuation of patients Patients enter by the north-west door and are dealt with at once by the lady almoner and the reception sister, who take particulars of their cases Old patients receive their record cards at the same office Patients are then called in turn from the waiting-room, to a dressing-cubicle, where urines are collected, and from there to one of the eight examination-rooms, where the examination is at once proceeded with. This done, the patient passes back to the dressing-cubicle and so out On the ground floor near the north east entrance is the postnatal and child-welfare section, where the progress of mother and infant is noted weekly, the latter being on the books for one year. Here also instructional classes for mothers are held. In addition, this floor contains the wards for antenatal inpatients, with a separate delivery suite, the examination suite for V.D outpatients and beds for V.D. inpatients, an emergency reception and delivery suite for dealing with unknown emergencies, and the X-ray installation. The delivery suites for the three main charges consist of receptions and preparation-rooms fitted with special baths,

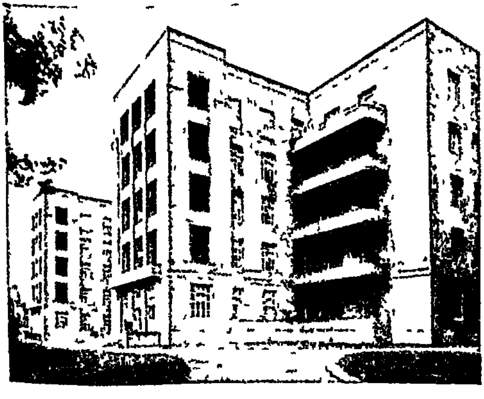


Scotsman

FIG 3—Florence Nightingale Nurses' Home Recreation hall

12 first stage labour rooms and 4 delivery-rooms The first-stage rooms are equipped with delivery beds, sterilisers and anæsthetic trolleys so that normal deliveries may be completed in them if necessary The windows are doubled and the walls made of special sound absorbing material The delivery suites are on the north side and consist of two pairs of delivery-rooms, each with its scrub up rooms between A gallery runs along the 4 rooms so that instruction may be given on four cases at any time The sliding type of delivery bed has been selected On the same floor is a fully equipped operating theatre for cæsarean section and other operative work Sterilising for the whole hospital is carried out in a central room On the second floor is a large lecture theatre seating 250 This will be used for systematic clinical lectures to pupil nurses, students, and postgraduates The observation ward on the fourth floor has its own first stage labour rooms and delivery suite and operating theatre

The work in the hospital will be distributed throughout three charges, each with its own chief, senior and junior obstetricians, clinical assistants and three house surgeons The senior clinical assistant and all the house surgeons will be resident in the Pavilion, which has a complete system of internal telephones The three gynæcological charges in the Royal Infirmary will be combined with the obstetric charges and the same staff will be in charge of the combined units Resident house surgeons will stay one year in the Pavilion They will do four months as junior resident obstetrical house surgeon, four months as gynæcological house-surgeon and four months as senior resident obstetrical house surgeon These residentships will be open to both sexes A resident undergraduate hostel is situated in a neighbouring street with direct access to the Pavilion In the Pavilion itself accommodation and board is provided for six postgraduates Facilities for postgraduate instruction will be abundantly available, and postgraduates will be taken for periods of one week and upwards Postgraduate teaching includes lectures and demonstrations and attendance at normal and emergency deliveries and at the antenatal and postnatal clinics The charge for board and lodging is 3½ guineas a week and the fees range from 2½ guineas for one week to 12 guineas for three months A special intensive course in midwifery and gynæcology will be held in July, the fee for this being £25 including board and lodging The records of the hospital will be in charge of a special medical registrar, who will issue an annual medical and statistical report



Evening Dispatch Edinburgh

FIG 1—Simpson Memorial Maternity Pavilion South view

THE NURSES' HOME

The Home is a seven storied building containing 280 bedrooms Each bedroom has about 110 sq ft of floor space, and is heated by a steam radiator and has a wash hand basin with hot and cold water The cupboards (hanging and shelf) and chests of drawers are built in, and each room is provided, in addition to the bed, with a rug, occasional and bentwood chairs linen basket, writing table and locker (fig 2) The lavatory and bathroom accommodation is adequate, there being one bath to every five nurses There are also shampoo-rooms and pantries on every floor where occasional teas may be prepared by the nurses themselves A sick-room of 23 beds occupies the top floor, which commands fine views of the Castle to the north and the Pentland Hills to the south In the maternity section of the Home are large and well-equipped class- and study rooms The ground floor of the Home contains dining rooms, library, sitting- and smoking rooms The recreation hall (fig 3) and adjacent sitting rooms can be thrown into one large hall suitable for dances and other functions

APPLICATIONS are invited by the Royal Society of Medicine for the William Gibson research scholarship for medical women Further information will be found in our advertisement columns.

MEDICINE AND THE LAW

Tuberculosis after Anti-diphtheria Inoculation

AFTER 12 days' hearing in the Dublin High Court, before the president and a jury, an end was reached on Feb 23 in the claim for damages arising out of the inoculation against diphtheria of children attending the Irish College at Ring, co. Waterford The serious allegations against the Wellcome Foundation (which had prepared and marketed the T.A F. used for inoculating the children) were rejected, the jury returning a verdict for the defendants after an absence of less than half an hour.

Two years ago (see *Lancet*, 1937, 1, 1305, 1480) we noted the result of an inquest at Ring on the death of a girl who had been treated with injections of T A F.; Dr. D. T McCarthy of Dungarvan, who had administered the injections, obtained the material from Dr Michael O'Farrell, county medical officer of health He had inoculated 44 children at St Augustine's College on three dates in November, 1936, and no illness had resulted, he had inoculated 38 children on the same dates at Ring College; several children in the latter group had sore arms and one girl died, post-mortem examination showed generalised tuberculous infection without meningitis The coroner told the jury that, if they believed they were not in a position to give an opinion as to the origin of the tubercle bacilli, they should say so; "I cannot see," he added, "how you are in such a position" The coroner's jury, undeterred by his hint, returned a long and technical verdict declaring that the tuberculous condition was originated by the inoculation in November and that tubercle bacilli were present in a 25 c.cm. bottle of prophylactic labelled "T.A F. Burroughs Wellcome," from which Dr McCarthy had extracted the material for inoculating the deceased In due course proceedings for damages for negligence were launched against Dr McCarthy and the Wellcome Foundation as joint defendants No fewer than eight King's Counsel (for there are still King's Counsel in Eire) appeared, along with members of the junior bar. The case, of which the *Irish Times* gives an excellent report, was rhetorically described in the opening speech as "unique" and "of vast and critical importance"; "it is no exaggeration to say that the reports of this case, and the results of it, will be greatly canvassed . . . all over the world."

THE PLAINTIFFS' CASE

The plaintiffs were Michael O Cionnfhaolaidh (*anglice* Kineally), claiming damages on his own and his wife's behalf in respect of the death of his daughter, and his three sons who had also suffered as the result of the inoculations. Mr Kineally claimed £16,100. His counsel made it clear that the outbreak of tuberculous disease among these children must have been due to one of two causes: either Burroughs Wellcome had issued by mistake a bottle containing a suspension of live tubercle bacilli, or else there had been some negligence or mishandling by Dr. McCarthy in administering the contents of a bottle which purported to contain, and really did contain, T A F. No other alternative was possible. By a forensic paradox plaintiffs' counsel in both the opening and final speeches and at all other times entirely disclaimed any suggestion of negligence against Dr McCarthy; indeed, as the president of the court remarked to the jury, the plaintiffs actually went out of their way to say that he was not negligent The defendant company's counsel offered his own theory of the reason why the doctor had been named as a defendant The Wellcome Foundation was an English concern and the plaintiffs could not ordinarily sue it in an Irish court, by making an Irishman a defendant they could name the Foundation as an additional defendant and could sue it in Eire Suggestions were made during the course of the case that the tuberculous infection might have been due to a fleck of sputum encountering the needle, or to contamination of the needle through its penetrating a cold abscess, or otherwise to faulty sterilisation. Plaintiffs' counsel from first to last scouted these hypotheses; the claim was so conducted as to leave no possible explanation except the substitution of a bottle containing live tubercle bacilli for a bottle of T A F. It was alleged that the company "prepared life-giving medicines almost side by side with death dealing bacilli" "Life and death were being manufactured side by side by Burroughs Wellcome, and the question would be 'was the life sufficiently segregated from the death'?" Dr McCarthy, describing in the witness-box his methods of injection and sterilisations (to which not a little criticism was directed during the course of the case), said it was his theory that he received a bottle of live tubercle bacilli instead of a bottle of T A F Mr. Patrick Kiely, F R C S, lecturer in operative surgery at University College, Cork, described the condition of the affected children They were suffering from primary tuberculous ulcers, and secondly, from tuberculosis of the arm-pit glands He said he formed the opinion that the material injected contained a strong and uniformly disseminated suspension of live and virulent tubercle bacilli. The hypothesis of accidental sputum on the syringe was, he thought, most unlikely; so also was the theory of infection from a cold abscess because of its rarity in such a position, the great improbability of such a swelling being unnoticed if present, the acknowledged scarceness of tubercle bacilli in cold abscess, and the wiping effect on the needle of the tissues and the rubber cap of the bottle He agreed, however, that the substitution of the wrong bottle was also most unlikely Mr. Henry MacAuley, a Dublin surgeon, also gave reasons against the theories of the sputum and the cold abscess Sputum was a mixed infection: if it had been present, he would have expected in many, if not all, of the cases a septic lesion at the site of the inoculation, followed by a tuberculous lesion; moreover, the infection would have been carried over from one bottle to another He had never known a case of cold abscess at the point where the injection was made He thought the cause of the children's illness was infection from germs uniformly disseminated through one bottle before the bottle was used by the doctor, in his opinion a preparation called B C.G. could have produced similar symptoms, but in cross-examination he refused to say that he thought the children might have been inoculated with B C G. Dr. William O'Donovan, pathologist, of University College, Cork, gave evidence that he had examined the contents of the second bottle used at Ring in November, 1936 and had found no sign of infecting organisms He said he had never wavered in his conclusion that, at the moment of inoculation at Ring, a bottle purporting to contain T A F. actually contained live tubercle bacilli. Dr. John McGrath, state pathologist (but not appearing in this case in his official capacity), elaborated the theory of the substituted bottle He had been to the Wellcome Foundation laboratories last April and he had seen guinea-pigs and rabbits which he understood were used for experimental work on tuberculosis In another part of the same building was a bacteriological laboratory He was informed that suspensions of tubercle bacilli, for use in infecting the animals, were prepared on the upper floor of another building, on a lower floor of the same there were animal rooms He described what he saw of the preparation of a bottle of T A F and he said he thought it possible that a bottle containing a uniform suspension of bacilli had been issued by the company by mistake If it suited his purpose, a worker could have filled a 25 c cm bottle similar to one produced in court with a suspension of tubercle bacilli for use on animals the doors of the packing room were apparently open having filled the bottle, the worker could convey it accidentally to the packing room and there, by mischance or lack of memory, might lay it down among others which closely resembled it, it would then go through the routine of labelling and packing and be sent out as T.A F In cross examination Dr McGrath agreed that at the inquest he had first suggested that T B might have got into a bottle at the laboratories and might still have been active when used at Ring, he knew now that this was highly improbable After calling further witnesses the plaintiffs closed their case By direction of the court Dr McCarthy was at this stage dismissed from the case, and the claim now proceeded against the Wellcome Foundation alone

THE WELLCOME FOUNDATION'S REPLY

Opening the Foundation's defence, Mr J M FitzGerald, K C, explained that the late Sir Henry Wellcome, who owned all the shares in Burroughs Wellcome, had so constituted the Wellcome Foundation that all profits were directed to research, there were no hungry shareholders The plaintiffs had made no general charge of negligence against the company, the allegations related to a single bottle He ridiculed the idea that an employee could by oversight go to the only place in the factory where these bottles were to be found before labelling, could walk in with a bottle of this terrible poison in his pocket, and could substitute the poison for the T.A F To that theory, said Mr FitzGerald, I apply what Dr McGrath said at the inquest about a similar theory—"short of insanity such a thing could not have happened" The jury had been told that there must have been a bottle containing an even suspension of bacilli because the symptoms of the children were uniform The symptoms were not uniform They all began with sores, it was true, but some sores showed in a month, some after three months, and one child was said to have first shown infection after twelve months If a bottle contained a suspension of tubercle bacilli strong enough to look like T A F when shaken up, the suspension would contain an amount at least 50 times as great as the amount of tuberculin used medicinally, and the effect on the children would have been early and severe Dr McGrath was the only doctor who, through thick and thin, had supported the plaintiffs' story of a substituted bottle, at the inquest he had charged the company with having allowed a bottle of T A B to become contaminated through carelessness in manufacture, he now fell back on the theory of the substitution by an absent minded worker Mr FitzGerald described the system of sterilisation used by Dr McCarthy and the nurses as incomplete and unsatisfactory He went on to describe the preparation of T A F at the defendants' laboratories The room where the serum was made was as much cut off from the room where the tubercle suspension was made as if there was a sea between them There were at least six separate inspections and checks of every tray and every bottle before the bottles were packed from the trays There was no evidence whatever of negligence, and the jury could not act on suspicion, surmise, or speculation

EVIDENCE FOR THE DEFENCE

The first witness called for the Wellcome Foundation was Dr H J Parish, who has been its principal bacteriologist since 1930 He told the court how the preparation of T A F was carried out in building No 62 of the laboratories, the material being then taken in 4 litre bottles to building No 5 In neither of these buildings were there any living organisms in suspension From No 5 the product went into cold storage for over a year and passed a series of elaborate tests (for sterility, toxicity, and potency) in compliance with the Therapeutic Substances Act There was also a test to see that the phenol content was correct The filling room, where the small bottles were filled from bulk, was regarded as a "sacred room", he himself entered it only to test the air in order to ensure that it was sterile Suspensions of tubercle bacilli were made in building No 61 or on the ground floor of No 62 where the T B animals were kept There was no connexion between the ground floor of No 62 and the top of the building An inexperienced worker might confuse the appearance of a bottle of tubercle suspension with that of a bottle of T A F, but anyone familiar with the two would notice a distinct difference Tubercle suspension was put into 50 c cm bottles, never into 25 c cm bottles which were used for T A F There would be approximately 1,000,000,000 tubercle bacilli in one cubic centimetre of the suspension, if it were injected into a normal child, he would expect the child's death within a month He had obtained portions of the unfinished bottle of T A F left over by Dr McCarthy after the Ring inoculations and also of eight bottles of the same batch Tests showed that none of the contents contained any organisms, he had injected guineapigs with the contents and none showed evidence of tuberculosis, samples of the contents were intentionally infected with tubercle bacilli and the bacilli died rapidly owing to the presence of the carbolic acid Dr Parish also described an experiment made by putting an infected syringe in contact with sterile T.A F He put a minute drop of tubercle infected sputum on the end of the plunger of a syringe similar to that used by Dr McCarthy at Ring, guineapigs injected with 1 c cm of the T A.F all developed tuberculous Repeated experiments showed like results The sputum would be carried into the bottle and infect the entire contents Describing Dr McGrath's theory as "a damnable accusation," Dr Parish said it would be criminally wicked if any culture were allowed to enter the building where there were products for human use Prof. John Blacklock, professor of pathology at Glasgow University, spoke of tests he had made of quantities of T A F, including some from the batch used at Ring, all were free from infection After introducing a suspension of tubercle bacilli into T A F, he found that in six days or less all the tubercle bacilli were dead Experiment showed that, if a syringe were used as Dr McCarthy used it, it was possible for organisms present in the needle of the syringe to contaminate a whole bottle of T A F Prof Blacklock also confirmed the possibility of infection either by flecks of sputum or by striking a cold abscess unsuspected by the doctor Prof J W. Bigger, M D, dean of the faculty of physic Trinity College, Dublin, gave evidence, as Prof Blacklock had done, of the systematic precautions at the company's laboratories at Beckenham, the admirable checking and recording arrangements, and the expert qualifications of the technical staff. There was a difference in the appearance of a suspension of tubercle bacilli and T A F ; even when really well made the suspension was somewhat granular, if the bottle had been standing for some time, the T.A F. formed a rather bulky floccular layer at the bottom and the tubercle bacilli a very dense, even, compact layer; no one who looked at the two a couple of times could possibly confuse them. Cross-examining counsel sought to put to Prof Bigger the possibility of a bottle of T A.F being contaminated at the laboratories and the contamination being held under the rubber cap of the bottle until pressure was applied to it by the doctor The court refused to allow the questions, the president said the plaintiffs had given no evidence of this possibility on which the jury could hang a finding; it was accepted that there was enough phenol in each bottle of T A F. to kill tubercle bacilli in six days Further evidence was given by the heads of the filling and packing departments of the company as to the intensive care and continual precautions taken in the production of the prophylactic Additional medical witnesses included Dr J C Saunders, medical officer of health for Cork City, Dr. C J. McSweeney, medical superintendent of Cork Street Fever Hospital in Dublin, Dr. R A O'Brien, director of the Wellcome Foundation laboratories since 1914, Dr Robert Collis of Dublin, and Mr H. L Barniville, senior surgeon to the Mater Hospital.

After counsel's speeches the president summed up The onus was on the plaintiffs, he said, to establish their case. If the evidence left the jury in doubt between two possibilities—one, that the infection came from the bottle as it came from Beckenham, the other, that it came from the bottle being infected by something that happened while it was in Dr. McCarthy's hands—if they could not make up their minds between those two alternatives, then the plaintiffs must fail He put to the jury the question which embodied the allegation on which the plaintiffs relied—Did the Wellcome Foundation negligently issue a bottle containing live tubercle bacilli in suspension for use instead of a bottle of T A F. ? The jury, as already stated, answered in the negative, and judgment with costs was entered for the Wellcome Foundation

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MENTAL NURSING

THE Royal Medico-Psychological Association and the medical section of the British Psychological Society spent the evening of Feb 22, with Dr DENIS CARROLL, president of the R M.P.A , in the chair, considering the question of mental nursing from many aspects.

THE CONSULTANT'S ASPECT

Dr R. D GILLESPIE distinguished two classes of mental patients: psychotics who were ill enough to be placed in mental hospitals; and psychopathic or psychoneurotic patients who had to be treated in their own homes or in single care, often under conditions of greater difficulty Training devoted entirely to the nursing of cases of the first class was apt to be inadequate to the care of cases of the second class. In his experience, the best nurses for the psychoneurotic patient had never had any training in an approved mental institution. Their qualities were intelligence above the average, inborn understanding of human nature, vocation, initiative in devising the right occupation for their patients' needs, patience and perseverance—in short, "personality" The training of the mental nurse should cover the psychopathic type of case, and the staff of a mental hospital were not likely to come into contact with many of these cases until its organisation was extended to psychiatric outpatient departments in general hospitals The behaviour of the two types of patient was different. Although the incidence of the second class was probably higher, the R M P.A. handbook on mental nursing contained only three pages on the psychoneurotic patient and no mention of the psychopathic Unless the medical officer had similar training, he was not likely to be able to teach the management of these patients to his staff Nurses might well be sent for periods of training to hospitals such as the Cassel, the Maudsley, and the Lady Chichester The Cassel Hospital had a scheme for training general nurses for a year in the nursing of psychoneurotic patients Re-education must be based on fundamental principles, and nurses trained to carry it out were indispensable. In psychotherapy they gave great help in obtaining the patient's confidence and inducing him to speak The nurse could also, under supervision, help to interpret the patient's behaviour to himself and to replace faulty mental habits by good ones.

THE MEDICAL SUPERINTENDENT'S ASPECT

Dr. A A W PETRIE (Banstead) traced the evolution of the mental nurse and of the examination system held by the R M.P A He suggested that the educational course should be divided so that the General Nursing Council were responsible for the preliminary and the R M P A for the final examination The report of the departmental committee on nursing might point the way to a wider portal and perhaps bridge the gap between mental and general nurses It was most important to enrol educated women, but the present rewards and conditions were not sufficiently attractive to enable the mental service to compete with the general hospitals, especially as the municipal hospitals were improving their conditions The presence of chronic patients deterred recruits from entering the public mental hospital, and private practice did not offer the same amenities or pensions. The R M P A handbook was an ambitious work, and had grown up from small beginnings It had to deal with much matter in a small compass Opinions differed on whether the handicrafts teacher should be a nurse or a separate kind of worker Female nurses were almost essential for certain conditions in male patients To send general nurses for six months to a mental hospital could do nothing but good, but at present the matrons of the big teaching hospitals were against this plan The educated type of psychoneurotic required an educated type of nurse Assistant nurses should be trained workers, for otherwise women would seek the assistant rank to avoid training If intelligent women, trained in general nursing, could be interested in mental nursing and trained for short periods in a mental hospital or a clinic, the ideal supply of mental nurses would be much nearer fulfilment

Dr. NOEL HARRIS (Woodside) considered that the object of training should be the nurse who was equally proficient in dealing with both the psychotic and the neurotic. The martinet type of nurse was hopeless for mental patients, as she tried to make the hysteric face reality without establishing the all important rapport which made for confidence Some assistant nurses who had failed to pass their

OTTAWA CIVIC HOSPITAL

examinations were of the motherly type, which was better but might fail to exercise the right kind of firmness, The amateur psychologist was a definite danger In dealing with the milder psychoses or psychoneuroses the mental hospital trained nurses were the best, for they seemed more stable when anything went wrong The best nurse had an intuitive knowledge of human nature and a way of making the patient feel as if she were going to help him, backed by a mental-hospital training, she was almost ideal. Male nurses were almost indispensable for some of the more difficult chronic patients, and even for some acute cases The only alternative was the orderly system, which was said to work well in the army but could not easily be applied to the civil mental hospital The orderly could hardly be expected to take the same interest in the work as a trained nurse

The standard of education among students should be higher He had been impressed with the number of girls he had met in the Student Christian Movement in hospital who had been anxious to take up work that they could feel was worth while If the need of the mental hospitals was put to these girls and conditions could be made better, a large number of them might find their vocation in mental nursing Some of the finest mental nurses were to be found in the religious sisterhoods abroad Mental-hospital matrons should have the same administrative position as in the general hospitals and should engage their own nurses

Some mental-hospital officers must take the blame for teaching psychology to nurses with a view to examination and not to their work with patients A medical staff keen on the psychological approach would help the nursing staff to realise its importance. Some nurses were amazingly good at applying a little austerity or a little tenderness to a patient at exactly the right moment at a hint from the medical officer Some hesitated to leave a mental hospital for special training because they feared that they would forgo superannuation time With the increase of clinics, admission blocks and special hospitals for neuroses, and the solution of the superannuation difficulty, the mental hospital nurse would come into her own and be able to nurse psychotics and neurotics equally well

Dr J **Ivison Russell** (North Riding) declared that medical officers were killing their nurses with criticism For improvement of the service, some praise of her work and elevation of her status were essential Many women of good credentials joined mental hospital staffs, but left when they saw what the service was like Those who remained and did well were, however, of exceptional quality The hospitals, by taking advantage of the industrial depression, had built up an incredibly good staff of male nurses The status of the male nurse should be improved so that when economic conditions became better, recruiting would not fall off The mental hospitals could get enough nurses if they would raise their status and cause the public to respect them more THE LANCET Commission on Nursing had said that the mental nurse should be supervised by general trained nurses in order that the early signs of physical disease might not pass unnoticed On the other hand, if there was one department of nursing in which the mental nurse had an advantage, it was in her experience in detecting the beginning of a physical illness The general trained nurse did not have the same opportunities of learning those signs

The recruitment of labour in an industry depended on its prestige At present the mental nurse was thought of as the kind of person who cleaned the hospital Mental nurses divided themselves—though superintendents would not accept the classification—into two classes nurses and nurse maids, according to their duties for the time being Dr Russell submitted that there was no reason why a maid should not be in charge of patients—e g, to see that they did not climb the garden wall. If some of the excellent young women who for one reason or another did not take their certificates could be used for these duties, they would not be terrified into resignation by fear of examinations, and might have their own grades of promotion—e g, to housekeeper in charge of the nurses' home or the parole ward Under that system only 60 per cent of the ward staff would be nurses, probationers would be few, and would be properly instructed and freed from the domestic duties which kept many girls away Mental hospitals would then be required to provide higher training facilities The technique peculiar to mental nursing was occupational treatment, but only a small proportion of the staff could be properly taught, and when a nurse learned the technique she ceased to be called a nurse If mental nursing were elevated to its proper place young women who trained as occupational therapists would be proud to complete the training course for a nurse A surplus staff could be kept for the nursing of private patients who entered homes within a local authority's area, and the time they spent could be counted for pension He believed that this was permitted by the Mental Treatment Act, 1930

GENERAL DISCUSSION

The **President** did not agree that all private mental nursing should be done by nurses trained in mental hospitals His own experience of male private mental nurses had been little short of disastrous For borderline cases personality was more valuable than training Agencies charged a higher fee for mental nurses with general training, but the consulting psychiatrist was lucky if these could give a hypodermic injection capably He should have his own panel of nurses whom he knew to be generally competent Psychotherapy by nurses was difficult to teach and to control, and the results of its unskilled use might be deplorable Nurses should be chosen for it who had an intuitive gift for saying the right thing at the right moment and could tolerate the anxieties of the particular patient

Dr C H **Rogerson** maintained that the best type of nurse for neurotic patients was the one with a general hospital training The Cassel Hospital was interested in training the general nurse in an understanding of psychiatric problems For this training the nurse needed exceptional intelligence and resource, but an important addition to her knowledge was an understanding of the mental mechanism of patients so that she could view their problems as those of illness and not of contrary and difficult people, and not be irritated and disturbed by them This knowledge would help her enormously in dealing with ordinary patients, who had many neurotic characteristics

Dr **Henry Yellowlees** remarked that in an institution where 80 per cent of the work consisted in giving the patients occupation the person in charge must take an active part in the occupation, even if it consisted in keeping the premises clean The occupational therapist did not differ from the nurse-maid The qualities of the ideal nurse were just those which training could not give

Dr A. J. PALMER said that in mental hospitals emphasis had been laid exclusively on training for treatment, although the nurse would not in practice carry out treatment, rather than on training in clinical observation At Woodside ward-classes were held in the nurses' home to teach accuracy of observation. He did not like nurses to help in treatment. The valuable training of the matron and higher grades should not be wasted in administration

Dr W J. T KIMBER said that at the beginning of a nurse's training at Hill End she was conducted round all the departments of the hospital and had their working explained, so that she could understand the aims of the hospital and her part in it, and how the other officers and departments assisted and supported her. The nurse's social background should approximately coincide with that of her patient. This need might explain the difficulty of obtaining a good nurse in private practice, where the patient might have more intelligence than the nurse To be of higher social standing than the patient, however, also put the nurse at a disadvantage

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THE AIR-RAID

A series of articles on medical organisation and surgical practice in air attack by

P. H. MITCHINER, C.B E , T.D., F R C S., *and* E. M. COWELL, D.S O., T.D., F.R.C S.

IX—CHEST WOUNDS

SEVERAL types of wounds of the chest may be found among casualties due to air-raids: (1) crush fractures of the ribs from falling masonry, (2) bomb wounds from shrapnel or fragments, (3) bullet wounds from machine-guns of low-flying aircraft, (4) shrapnel from anti-aircraft guns, and (5) fatal laceration of the lungs from "blast" In Spain the mortality from chest wounds is very high, especially in women and children. Apart from early closure of the open pneumothorax and blood-transfusion, but little treatment has been carried out, and operation has not been attempted to any great extent up to the present time.

As the result of experience gained in the war 1914–18 the following types of chest wound were recognised: (1) injuries to the chest wall, with or without damage to thoracic contents, (2) perforating (with wounds of entry and exit), (3) penetrating (with wound of entry alone), and (4) abdomino-thoracic. The fact that wounds due to bomb fragments are often multiple must not be forgotten; the missile that has perforated an arm may lodge in the chest, and the man brought in with a bomb wound of the leg may also have a penetrating chest wound.

THE INJURIES

The *parietes* may be damaged extensively by falling masonry. Such wounds are serious; fractures of the ribs and sternum may be complicated by damage to the spine (fracture-dislocations or crush fractures) Early radiography is essential. Apart from the application of strapping, bandages, or plaster-of-paris, treatment by rest, morphine, and oxygen is indicated Traumatic asphyxia may be met with, and the doctor should remember the possibility of this condition. An oxygen tent affords the greatest relief to the urgent dyspnœa. Evidence of internal injuries, such as hæmorrhage, ruptured bronchus, or collapsed lung, should be sought for. Surgical emphysema commonly accompanies crush injuries of the chest. The condition is alarming to the patient but in itself is not serious. It must not be mistaken for gas gangrene

In a *perforating* wound the wound of entry may be a small opening, sealed by blood-clot. The wound of exit is usually larger and is perhaps bleeding, owing to the greater damage done to the chest wall The amount of internal damage done may be estimated from the line taken by the missile. At the wound of either entry or exit the rib may be comminuted and the intercostal vessels may be lacerated and still bleeding

In a *penetrating* wound there is a wound of entry only. If the wound of entry remains open and allows air to be sucked in with each respiratory movement, the homolateral lung rapidly collapses, the chest fills with blood, and the mediastinum is drawn over towards the wounded side. These changes are illustrated in fig 1. The condition is that of an open *pneumothorax* If the opening is closed, even temporarily, the lung begins to expand again rapidly, and the urgent distress of the patient is relieved.

The pleural cavity rapidly fills with blood, which becomes defibrinated owing to the continual movement of the lung. Shreds of fibrin adhere to the surface of the lung and diaphragm. The lung may be damaged in one or more lobes It rapidly collapses as the *hæmothorax* develops; hence bleeding is checked. The wound of entry into the lung is readily found (sometimes there is a large superficial laceration), and the wound of exit may be seen, or the foreign body may be found under the pleura In early cases the track of the wound, when opened up, is seen to be full of necrotic material, including fragments of rib, shreds of clothing, and perhaps the bullet or bomb fragment A severed vessel may be found and sometimes a cut bronchiole. The lung tissue immediately surrounding the track is infiltrated, firm to the touch, and hepatised Later, septic and pneumonic areas develop, and subsequently abscess, empyema, or gangrene. The surface of the diaphragm becomes covered with shreds of fibrin, and on it may be found fragments of rib, foreign bodies, and other septic material Search *should always be made for wounds of the diaphragm* The pleural cavity may be full of air (pneumothorax) or a mixture of air and blood (hæmopneumothorax). A closed pneumothorax may result from damage to the bronchus or a finer branch, or may result from the development of gas in the presence of an anaerobic infection. The *open pneumothorax* is produced when the wound allows free access of air

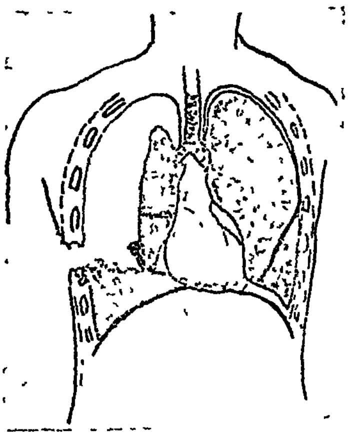

FIG 1—Diagram showing effect of open pneumothorax on the lung (After Sauerbruch)

Elliott and Henry (1917) in an examination of 500 ases of chest wounds found 195 infected, including 7 with anaerobic bacilli The *infection* is generally rried in by the missile, but anaerobic organisms may me from the surface wound When introduced the naerobes grow readily in the blood present in the leural cavity For the first twenty four hours e sepsis remains localised to the wound track, nd conditions are favourable for operation

Symptoms —A person suffering from a chest wound nmediately exhibits considerable distress The yspnœa becomes severe, and there is usually a ainful cough and possibly hæmoptysis When there an open pneumothorax, the to and fro suction ounds become most alarming to the patient In a w hours the signs of shock, with or without hæmorhage, supervene, and the patient becomes cold, blue, nd pulseless Signs of sepsis and inflammation do ot appear as a rule for twenty-four to forty-eight ours

Pierre Duval (1917) gives the *mortality* as 25–30 per ent in the dressing-stations These deaths result from leeding and mechanical asphyxia In the casualty ospitals the mortality is still 18–20 per cent Death s early in half the fatal cases The seriousness of he condition varies with the nature of the missile s well as with the nature of the wound, thus, ullet wounds give a mortality of 2–12 per cent, hell wounds 16–28 per cent, perforating wounds 1 per cent, and penetrating wounds with retained oreign body 30 per cent In 60 per cent of the atal cases death comes in the first forty eight hours Open wounds are said to be twice as fatal as closed wounds

TREATMENT

The successful treatment of these wounds depends argely on the administrative arrangements Early ecognition is essential, and priority evacuation o special centres is the ideal. Immediate first aid reatment and rapid transport in the Fowler position hould be encouraged At the dressing-station shock hould be prevented and an open pneumothorax losed by plugging or skin suture At the hospital an experienced physician should consult with the surgeon on the question of operation If operation has been decided upon, the case should be dealt with only by surgeons possessing the special experience which chest surgery demands Such surgery should be carried out with a team trained for the work, this team includes the anæsthetist, assistant, radiologist, and skilled nurses in special wards with oxygen tents

The general condition of the patient is studied and the presence of other wounds noted In all cases the blood pressure is determined, some cases the blood volume and hæmoglobin percentage also Radiography, if the patient can stand it, is helpful

In examining the chest the surface wounds are carefully observed, and the time that has elapsed since the wound was sustained is taken into account Information as to the presence of hæmothorax, pneumothorax, or collapse of the lung can be obtained by physical examination The position of the heart should be accurately ascertained

Prof Gask, writing in 1917 on his experience of 500 cases, gives the following indications for early operation —

(1) A ragged wound of the soft parts
(2) A compound fracture of ribs
(3) Bleeding from the parietal wound
(4) Suction of air into the pleural cavity
(5) Retention of a large foreign body in an accessible position

(6) Pain due to fragments of rib scratching the lung on every respiration

(7) Rapidly increasing pneumothorax due to a valve-like opening into the pleural cavity, which allows air to be sucked in and prevents its expulsion

Pierre Duval (1917) says, “Leave bullet wounds alone, always operate on all shell wounds” We agree with this dictum from evidence based on our own experience

If none of the above mentioned indications are present, the case is dealt with on the usual medical lines, and a careful watch is kept for complications Hæmothorax is aspirated only if producing inconvenience, and a needle is inserted if infection is suspected Apart from collapse due directly to the effusion of blood, massive collapse occurs in about 10 per cent (Gask 1917) and contralaterally in 1 per cent Pneumothorax is usually absorbed rapidly, but, when it is due to anaerobic infection, operation is indicated Surgical emphysema is not uncommon and usually clears up rapidly

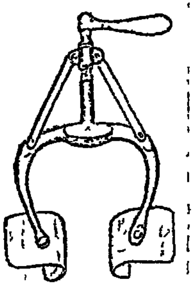
Fig 2—Rib-spreader (Schaerer's pattern)

As a result of the pioneer work of Pierre Duval, Gask, and others, the previous reluctance of surgeons to operate on chest wounds has been replaced by confidence and satisfaction with the results gained Once it was shown that the chest could be safely opened and the lung could be directly handled, it became obvious that wounds of the lung should be treated on the same lines as any other infected wound containing septic material and an irritating foreign body

The following special instruments are required —

(1) Doyen's periosteal rib-elevator and shears
(2) Small 1 cm trephine and Cowell's double-bladed thoracotomy saw (Mayer and Co)
(3) Powerful rib spreader (Schaerer's pattern) (fig 2) or Tuffier's *écarteur*
(4) Duval's lung-forceps (Collin, Paris) or Cowell's peritoneal forceps (Mayer and Co)
(5) Symonds's round-bodied fish-hook needles
(6) Good illumination is essential, and a head-lamp may be useful

Local or regional anæsthesia is recommended by some surgeons The patient has usually received a heavy dose of morphine beforehand and undergoes gas and oxygen anæsthesia well. It is not necessary to raise the intrapulmonary pressure The lung is already collapsed, and attempts to inflate it only hamper the surgeon

OPERATIVE TECHNIQUE

After radiography if circumstances permit, and probably a previous blood transfusion, the operation is carried out in the following steps —

(1) The superficial wounds are excised in the usual way, and a decision is made whether to open the chest through one of the original wounds or through a new incision The optimal access is obtained by an antero-external incision along the third, fourth, or fifth rib from the edge of the sternum to the mid-axillary line

(2) *Thoracotomy.*—Le Fort's antero-external flap, including incision of one or two costal cartilages, is not recommended The chest is best opened by either resecting a rib or sawing it along its long axis for four or five inches, according to the size of the surgeon's hand. If the latter method is used, a centimetre trephine makes an opening through which the double-bladed saw divides the rib forwards and backwards. The cut is made so that the edges of the divided rib are bevelled. The ends of the sawn rib are cut across with forceps, and the opening is ready for the introduction of the spreading forceps. The advantage of this method is the facility with which the chest is shut; the pleura which adheres to the divided portions of the rib is closed by tying these together like lacing corsets.

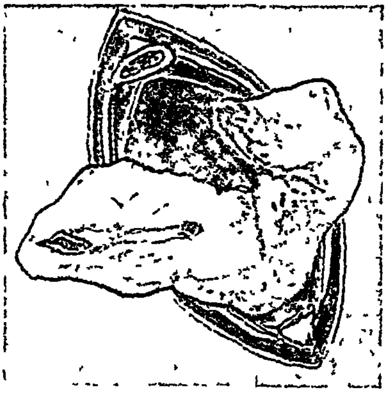

FIG 3—Exteriorisation of lung The rib has been split and each half widely retracted by a powerful rib-spreader (not shown). The lung has been drawn out and will be packed off while the toilet of the wound track is made. (After Duval)

(3) *Rib-spreading.*—With one of the powerful spreaders already mentioned the opening is made wide enough to admit the hand

(4) *Exteriorisation of the lung.*—The first portion of the lung that presents itself is seized with the lung forceps and drawn up into the wound. It is then covered with gauze, firmly grasped, and drawn out on to the surface of the chest. Each lobe can be delivered and examined in turn if necessary after separating any adhesions (fig. 3). When the wounded parts have been found, the opening into the chest is closed by packing round the exteriorised lung, to prevent the free entry of air. No attempt is made to deal with any fluid in the pleura at this stage.

(5) *Track toilet and removal of missile.*—The wound of entry into the lung is examined and then cleaned by gentle swabbing with gauze, any ragged pieces of tissue being snipped off with curved scissors Necrotic material is swabbed out from the track, and any foreign bodies, such as fragments of rib, missiles, or shreds of clothing, are gently removed. If the bomb fragment is felt under the pleura on the opposite side of the lobe, a separate incision may be made, but this is not generally necessary. In the case of a through-and-through wound, gentle cleansing by a gauze wick may be done. Sometimes a whistling bronchiole may be tied off or a bleeding vessel ligatured.

(6) *Suture of the lung.*—There is an area of infiltrated tissue round the track, and no attempt is made to suture this. The surface of the lung, however, must be closed to shut off the wound from the pleural cavity, internal drainage of the wound being provided naturally through the branches of the bronchus. Lung tissue holds sutures well, and no difficulty is found in tying them off. Medium-size catgut is quite satisfactory. The lung is now returned to the thorax.

(7) *Pleural toilet*—Any fluid present is gently removed by a suction apparatus or by mopping, care being taken to remove all clots and fibrin adhering to the diaphragm or to the parietes or foreign bodies that may have fallen loose into the diaphragmatic recess Shell fragments may be seen fixed in one of the vertebral bodies, or wounds may be seen in the diaphragm suggesting an abdominal injury as well as a thoracic one.

(8) *Closure of the wound*—The spreader is removed and the chest closed in layers. Pleura is, unlike the peritoneum, difficult to suture by itself, and unless the rib-splitting method has been used, is included with the intercostal muscles When the rib has been excised it may be necessary to pass stout sutures round the two adjacent ribs, and in any case care must be taken to make the ends of the wound air tight The second layer, consisting of the pectoralis or other muscle, is then sutured, and finally the skin is closed No drainage is necessary

(9) *Aspiration of air.*—The discomfort of the patient after operation is lessened if the pleural cavity is emptied of air. This is generally drawn out by a large syringe with a two-way tap. If Potain's aspirator is used a negative pressure may be set up, causing bleeding of the lung.

(10) *Application of dressing.*—In order not to impede the movements of the sound side of the chest, it is advisable to retain the dressing in position by unilateral strapping. If a many-tailed bandage is applied it must not be put on tightly.

RESULTS

Chest operations are among the most satisfactory of the surgical procedures carried out for war wounds It is possible to open a chest, remove a foreign body and close the chest in 15–20 minutes. The after treatment includes careful watching for complications. The nursing details will be given in a later article

Duval claims that in one series of 33 selected cases operated on without indications of urgency all recovered The figures given for the severer cases tell a very different story. In a series of 161 cases the mortality was :—

	Cases and per cent
Died on admission (no operation).	13 (23)
Immediate operation .. .	29 (44–8)
Early operation	17 (0 0)
Medical treatment	102 (1·0)

In Gask's series 104 cases were operated on with a mortality of 20 2 per cent , and 206 cases were treated medically with almost the same result—21 07 per cent The first series were all serious cases, the second much less serious wounds

ABDOMINO-THORACIC WOUNDS

Gordon Taylor, writing on this subject in 1919, states that abdomino-thoracic wounds constitute 9 per cent of chest wounds and 12 per cent of abdominal wounds admitted into a casualty clearing station The early mortality-rate in France was very high—about 80 per cent—and as a rule only those survived in whom solid viscera alone were damaged When improved methods were adopted, a total recovery-rate of 64 per cent was obtained

The incision advocated by Pierre Duval in 1917 is generally followed when thoraco-laparotomy is indicated. The patients are generally moribund on admission to hospital Active resuscitation methods, including blood-transfusion, alone make surgery possible and thereby offer the patient a chance of recovering.

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GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations Each contributor is responsible for the section for a month, his name can be seen later in the half-yearly index

FROM A PART TIME PROFESSOR

I

IN recent years the part time university chair in medicine has been strongly impugned Its critics have asserted that it is both a sinecure and an anachronism It is suggested that the sole duty assigned to its occupant is to deliver each session a course of systematic lectures in medicine, and even this is considered by some no longer necessary, for they assert that the student can obtain more detailed and accurate information from his textbooks The professor plays no special part in clinical teaching for this he shares with his hospital colleagues Moreover, the fact that he has chosen Mammon, as typified by consulting medicine with its "glittering prizes," is evidence that he lacks not only the spirit of self denial but also the intellectual depth and outlook which are necessary for research Finally, the university is called upon to refrain from enhancing the market value of an already prosperous consulting physician by conferring on him, in exchange for the lectures he delivers, the title and dignity of professor

However accurate these allegations might have been in the past (and I can neither confirm nor deny them from my personal knowledge) they are entirely unfounded today The holder of a part time professorial chair in medicine willingly and adequately shoulders its many responsibilities

He teaches the *current* knowledge of his subject This entails his keeping abreast of recent advances by reading the literature and attending scientific meetings No textbook can replace his lectures Rapidly advancing knowledge leaves the textbooks well behind and no text can be as vivid as the lecture illustrated and annotated by the speaker's own experiences Most universities have established departments of medicine with clinical and experimental laboratories In these the professor endeavours, not only by his own efforts but by stimulating the curiosity of his students, to extend the frontiers of medical knowledge As the head of his department he must direct its activities, both routine and research, he must engage its personnel, and he must guard, so that it is spent to its greatest advantage, its limited and all too meagre income

He is also, by virtue of his chair, a member of a university, which is no mere technical school It is a society endeavouring to prepare its youth for a mode of life as well as a means of livelihood And so his administrative functions cannot be confined to his department and faculty, he must play his part in the deliberations of the university senate With increasing recognition by the university of its responsibilities for the physical well being of its members it is natural that the professor of medicine should be called upon to supervise medical examination schemes and the like

And he has public duties In part these are the direct outcome of his university post, for example as an examiner for university degrees, he helps to prevent those who fail to reach the necessary standard of knowledge from being registered as medical practitioners But his expert advice is eagerly sought in the service of the community and so he is expected to become an active member of innumerable committees, commissions and the like To sum up, his duties are not only teaching, research and administrative but also advisory

* * *

It is not surprising that the efficient fulfilment of these multifarious duties of the chair should have been regarded as possible only by one prepared to devote the whole of his time to them Hence many whole time professorships of medicine were instituted in this country after the war There was, however, one consideration above all others which led some universities to reject the principle of whole time clinical chairs It was known that the older test—namely, that of proved worth in clinical medicine, as measured by success in practice and clinical teaching—had provided professors not only of deep medical learning and experience but also of broad general culture It was recognised that however important were technical skill and research ability, the most essential requirement of a professor of medicine was that he should train efficient practitioners and that this demanded not simply knowledge but the wisdom, sympathy and understanding which are acquired only by intimate and constant contact with men and women in their own homes The ill patient, in other words, is not simply a scientific enigma but a human problem, a fact too frequently overlooked in these days when medicine and its kindred sciences are advancing with well nigh uncontrollable speed In the hands of a "scientific" physician, the human being who is ill may undergo so complete an audit of his bodily activities that death may be regarded by him as a welcome release from the assaults to which he is subjected in the name of "clinical investigation" Against this attitude towards disease the professor of medicine, who is a practising physician, forms the strongest bulwark

* * *

If it be asked why the successful consultant should agree to undertake the onerous duties of a chair, the cynic will doubtless answer that the primary consideration is the accompanying financial reward But the direct emoluments of a part-time chair are quite negligible and for the most part expended by the professor in making good departmental deficits on apparatus and in subsidising additional research

If proved success be accepted as establishing a claim to the chair then the indirect reward which may result from the increased practice believed by the critics to follow the holding of a chair will be most evident in those who are the less satisfactory aspirants The most suitable candidate for such a chair will already have secured a practice as large as he desires and the additional duties of the chair can but reduce the time available for private practice, for leisure or for both

There are two main incentives to accepting a part-time chair One is pride in achievement (call it vanity if you will)—the attainment of one's ambition to be the recognised head in a medical centre of one's branch of the profession—the "leader" instinct. But this is far from being an ulterior and entirely selfish motive, a similar gibe might be aimed at any public figure, be he prime minister or city alderman. The other is based partly on the pleasure some find in teaching and partly on the altruistic motive of using one's talents for the benefit of one's fellow men Successful teachers and lecturers are born, not made, just as some men have an innate genius for research and others are capable only of those routine investigations which show no original flair Herein lies the crux of our whole problem. *What relative importance should be attached to teaching ability and to research achievements in deciding by whom a chair in medicine should be held? As Newman has observed in the preface to his Idea of a University,* "to discover and to teach are distinct functions; they are also distinct gifts and not commonly found united in the same person" It might then be thought that the proper solution to the problem would be to divorce clinical teaching from clinical research and to establish separate chairs in these subjects, the latter conforming to the "clinical science" of Lewis and not to purely experimental and laboratory investigations bearing only a remote relationship to clinical problems I believe, however, that although there should be a separate chair of clinical science to be held by a man of proved worth and achievement in clinical research (and carrying a salary sufficiently attractive to the best man) it would be a profound mistake to confine the duties of the professor of medicine to teaching and to withhold from him the opportunities for research For clinical problems present themselves in somewhat different ways to the practising physician and to the research worker In the final analysis it is the practising physician who is more likely to recognise new disease types—for example, epidemic encephalitis, psittacosis, and the like. His research colleague will probably throw light on the nature and causative factors of established clinical syndromes

It would doubtless be sufficient if there were placed at the disposal of the professor of medicine the full armamentarium of the laboratories of the ancillary sciences—bacteriology, biochemistry, &c. The difficulty here, however, is that the heads of these departments have their own problems and only limited resources of personnel and money with which to pursue them. At the moment, therefore, we must carry on with our inadequate medical research departments in the hope that one day greater public generosity and increased governmental grants, together with helpful and unselfish coöperation between the various departments, will enable the professor of medicine to make use of them all for the common good For it is incumbent upon every university teacher to pursue research The first principal of Owens College, Manchester, Mr. A. J. Scott, said in his inaugural lecture, "He who learns from one occupied in learning, drinks of a running stream. He who learns from one who has learned all he is to teach, drinks 'the green mantle of the stagnant pool'"

The practising physician faces, day in and day out, novel problems demanding both knowledge and the research spirit; each patient he sees differs in some way, however small, from all other patients he has ever seen. Sometimes he solves their problems, but even his failures are not without reward if they bring a spirit of humility and the discipline of the mind which this engenders

The part-time professor of medicine is an indispensable link in the chains both of medical teaching and research.

* * *

After this *apologia pro vita mea* and lest my "sententiousness and ponderosity" has incurred Horderian censure let me add two lighter notes

The recent revival of "The Doctor's Dilemma" at the Westminster Theatre led me to re-read this play. I find Shaw describes Mr Cutler Walpole as "a man of 40," and then makes him say, "I have been a surgeon and a consultant for 20 years" *Aliquando bonus dormitat Shavius!*

In one of the answers to an examination question on "pneumothorax" which I set a few weeks ago, the well-known coin-sound was referred to by one student as "bruit d'aryan." But is not this phrase more appropriately applied to the music of a modern German band?

MEDICAL PEACE CAMPAIGN

FOLLOWING the second annual general meeting of the Medical Peace Campaign on Feb. 22, Prof J. A. Ryle, the president, gave some account of the present status of the campaign and of its aims for the future Doctors were aware of the dysgenic influences of warfare; but we are, he said, now too close up to possible emergencies for the quiet development of *an anti-war policy—and for that reason the campaign* was devoting itself rather to preparedness in a medical sense. The work of the medical profession is, he said, pacific and humane at all times. The three main lines of activity for the immediate future were these: (1) Some attempt to increase the membership, now 200 to 300, and to establish contact with the medical profession in other countries by the circulation of a manifesto, to be *broadcast throughout the world.* He mentioned with approval *the action of the* Balkan *Medical Union which had recently issued* through *its president*, Prof. A. M Ozden, such a manifesto (2) Some thought for civilian medical service in the event of war. He had misgiving about the present organisation, for so little had been done to take the medical profession into its confidence But expert advice should be available from medical men "*not* yet senile" who had had experience in *designing* casualty *stations* and in arranging for the segregation of various *types* of casualties. Some sort of general *staff to deal* with supply and evacuation should be more efficient than any committee of the Ministry of Health. (3) Some attention to the urgent question of the health and feeding of masses of refugees. Could not doctors who were themselves refugees be given the opportunity of such service, which *might* lead on to a more general plan for mobile *assistance* in times of catastrophe. *The campaign he went on, would remain most effective if it kept its policy as medical as possible; only as medical* men could its *members speak as experts.* He was, he confessed, a little depressed by the lack among doctors of positive action, part no doubt of the general inertia and atony prevalent in the country; surely the medical profession should have plans of its own ready in case of breakdown of government plans. We are, he said, aware of our mission and the principles are *so simple* *After some general discussion Dr. Janet* Vaughan *spoke of the food situation in Spain* referred to in a memorandum issued by the Committee Against Malnutrition. Although some might feel that circumstances had made this leaflet out of date, it did, she thought, provide a useful analogy for the feeding of large numbers of people anywhere in time *of need* Since the last war the science of *nutrition* had *advanced so much as to make it urgent for* doctors to *be instructed in the principles of* nutrition as we now know them.

LETTERS TO THE EDITOR

MEDICAL FORESIGHT AND A R P.

SIR,—Architects and civil engineers have rendered great service in passive defence by using knowledge of their own materials (concrete, iron and layers of earth) to inform the public of the probable degree of security obtainable by the use of them In particular, the now famous Finsbury exhibition has *shown us how to think in terms of quantity of danger* and also to assess protection in quantitative terms This is valuable for two reasons it guides policy on rational lines, and it tends to diminish the swing of belief between the almost equally foolish extremes "complete protection" and 'inevitable danger" Could not the medical profession with its specialised knowledge of its own materials make an analogous contribution to passive defence? Would it not be possible to make a survey from the medical point of view, beginning with one area—say Finsbury, since the engineers and architects have already done their work well there? This would apply our general knowledge of medicine to intricate problems raised by the bombing of an area which, though healthy in time of peace, may be made medically dangerous by a raid through broken drains, defective water supply and interrupted transport

Such a survey would bring before ourselves as a profession the problems we may have to face, and, following the excellent example of the architects and engineers, we in turn could put before the public (whose coöperation after a raid will be essential) our detailed plans for their protection It is important that measures should be taken in advance to check the spread of apprehension which would almost certainly arise if an urban population found its supplies of food and water suddenly curtailed and its sanitary system suddenly becoming a danger However valuable it may be to think of A R P in terms of nation wide needs, bombs in fact hit certain spots The object injured, whether a person or a borough, has arteries and nerves and an alimentary system Those who live in places which may be hit want to know what to do beforehand for protection and what would need to be done next after a raid

Of course such plans cannot be brought to perfection n paper But the medical survey suggested should ad to a plan for dealing with injuries to the health s well as the limbs of the people, and should be made ublic, because by fore knowledge of how to remedy vil the dread of it is lessened

I am, Sir, yours faithfully,

Kent Terrace, N W 1, Feb 24   JOHN RICKMAN

⁂ Dr Rickman's suggestion was made at a eeting of the Medical Peace Campaign, of which brief report is given on p 638, and was welcomed here as a concrete plan on which the medical pro ession could bring their scientific training to bear n local A R P problems —I D L

BRONCHOGRAPHY

SIR,—I read with interest Dr Philip Ellman's rticle on a method of bronchography in your issue f Feb 25 His emphasis on the simplicity of the method will no doubt induce a number of your eaders without previous experience to try it should like, therefore, to indicate briefly a few lifficulties which may arise, and to make some riticisms affecting the details of the procedure

In the first place, provided the patient's tongue is held well forward, I cannot see any advantage in the nasal method over the more usual one of dropping the iodised oil over the back of the tongue In fact a little more cocaine must obviously be used in the nasal method to anæsthetise one nostril as well as the throat When a 10 per cent solution of cocaine is used, as advocated by Dr Ellman, reactions occur even in patients who have shown none after a hypodermic injection of gr 1/10 It is, in my experience, much safer to use Decicaine in a 2 per cent solution It should also be the endeavour of the operator to use as little anæsthetic as possible In order to do this it is worth remembering that cocaine derivatives applied to a mucous surface take a few minutes to act I know of a case where, through the failure of an inexperienced house-physician to realise this delayed action, half an ounce of the solution was used to secure anæsthesia with a fatal result I have never used more than one drachm in any case, and often only half that amount

I am, Sir, yours faithfully,

Harley Street W 1, Feb 24   L P E LAURENT

CONVULSION THERAPY

SIR,—I was interested in Dr Gillespie's account of the feelings expressed by patients undergoing convulsion treatment as I have been collecting similar records for some time past I have also found that the patient's sensations preceding the fit and his reaction to the treatment are variable, depending to a certain extent on the type and the chronicity of the mental illness For instance, it is generally impossible to explain the rationale of the treatment to a regressed schizophrenic, and if he is of the paranoidal type he not infrequently includes the injection into his system of persecutory delusions On one item, however, my findings do not agree with those of Dr Gillespie He states that "patients were mostly slow to attribute any improvement in their condition to the treatment" I on the contrary have found that wherever a good remission occurred, the patient invariably gave the credit to the injections I will quote the example of a patient who described the premonitory sensations as "terrible, if she could die she would" Nevertheless she willingly continued being treated because "she hadn't felt so well for years" as a result of the first nine injections Another patient, who made a good remission, wrote home as follows "I am having injections I've had three already, the last one I had to stay in bed the whole of the day, but that one did me most good, it has put new life into me and I am eating ever so well"

I employ triazol as the convulsant and I wondered whether this might account for the difference Perhaps other workers using triazol might be able to give relevant information on this point

I am, Sir, yours faithfully,

I ATKIN

Park Prewett Mental Hospital, Basingstoke, Feb 17

SIR,—Your leading article last week quotes Meduna as saying, "As regards enthusiasm, I must confess that I am not myself enraptured with the cardiazol treatment, but for the present I do not know anything better that I can recommend In any case I regard it as my duty to work as hard as I can at devising a procedure that obviates the apparently violent shock to the patient, while utilising only the biochemical processes to which the shock gives rise" I have been working on this very point for some years, and for the last five years have used a method which I believe may be exactly what is meant by Meduna's last sentence. I realised that in the treatment of schizophrenia, in all the methods mentioned or tried, both old and new, whether it be a trap-door or insulin, shock is a common factor to them all, and a chemical substance always associated with shock is *histamine* In fact histamine is not only present in insulin shock, but in every variety of shock, including anaphylaxis, surgical shock, the shock of acute intestinal obstruction, and the shock of extensive burns I started to work with a mixture of histamine and insulin thereby believing I should get the same results by eliminating convulsions. So far the results appear to be much better than the convulsive methods This method of mine has been the subject of a paper read by me to the Royal Medico-Psychological Association, has been published in the *Journal of Mental Science* for July, 1938, and has been used elsewhere with good results.—I am, Sir, yours faithfully,

HORACE HILL.

Laverstock House, Salisbury, Feb 24

FIBROCYSTIC DISEASE OF BONE

SIR,—Probably the most important feature of the case described by Drs Robson and Todd is the fact that though the condition of the bones suggested hyperparathyroidism no lesion of the parathyroid was found on exploration. Actually the radiographic characters of the bones in parathyroidism—and for that matter in xanthomatosis—are characteristic and can be distinguished by the trained observer. This is well brought out in Mr. R C Elmslie's paper on fibrosis of bone and in L Lichtenstein's excellent account of this condition (*Arch. Surg* 1938, 36, 874) under the title of "polyostotic fibrous dysplasia" in which he states that "in at least 6 instances patients were subjected to exploration for parathyroid adenoma because of the mistaken clinical diagnosis of hyperparathyroidism In each instance the parathyroid glands were found to be normal in size and appearance. Two additional patients were needlessly subjected to rontgen irradiation of the neck under the same erroneous premise —It is manifestly illogical to expect that a disease resulting from hyperfunction of endocrine glands would affect the bones of only one side of the body."

I do not think Dr. Parsons can blame the authors and others for failing to mention the case published by Dr. Frances Braid in the article he quotes; for the illustrations bear little resemblance to the appearances seen in the case under discussion On the other hand, the serial X-ray photographs which I have made annually of the skeleton of this child do suggest that the appearances which she illustrated are the first radiographic signs of this malady and therefore worthy of credit and most careful study When the patient was first sent to me from an infant welfare centre I regarded the condition as an unusual form of osteogenesis imperfecta, and I so recorded it in my Hunterian lecture Every bony element of the skeleton was imperfectly ossified; compact and cancellous tissue appeared to be represented by a structure, resembling ground-glass, in which rounded or whorled non-calcified areas were visible; these I regarded as areas of cartilaginous proliferation It is these latter areas which now appear to be assuming the characters seen in the adult cases of fibrous dysplasia But whereas in the unilateral examples the skull sometimes presents a localised blister-like expansion of a segment which may be an inch or more in thickness from inner to outer periphery, the skull of this patient is uniformly thickened to a degree which suggests that cranial nerve lesions may ultimately develop as in Albers-Schönberg disease.

I am, Sir, yours faithfully,

Birmingham, Feb 27. JAMES F. BRAILSFORD.

EXCRETION OF INJECTED ANEURIN

SIR,—The paper by Prof. Marrack and Miss Höllering in your issue of Feb. 11, prompted Dr Pyke to write the letter published on Feb 18, which in our opinion is not quite fair When Dr. Pyke states "that the results (of the thiochrome method) cannot be established within a range of less than about 500 per cent," this is only true when all precautions are neglected, which is done neither by Prof Marrack and Miss Hollering, nor by us, nor by the numerous other authors applying the thiochrome method to urine Moreover the fact that Dr. Pyke expresses the error as per cent of the lowest result obtainable clearly indicates that he aims at discrediting the method as much as possible.

We have never tried to conceal the difficulties of the thiochrome method and have always been anxious to make clear that it may be still much improved Nevertheless, it is the only method of determination of vitamin B_1 adequate for clinical use. And when this is done as carefully and cautiously as was done by Prof. Marrack and Miss Hollering, warnings like those included in Dr. Pyke's letter seem quite superfluous to us

We are, Sir, yours faithfully,

H. G. K. WESTENBRINK,
J. GOUDSMIT.

Copenhagen, Amsterdam, Feb 24:

AS OTHERS SEE US

SIR,—Dr. Crisp's letter in your issue of Feb 18, pointing out that the profession of a general medical practitioner is competitive, is of real importance. The work of the G P. is the basis of medical treatment of the populace generally. There are many schemes proposed from time to time dealing with his work, and, in order that such schemes may be framed to the best advantage of all, it is most necessary that the true position of the G P. should be known

It is only when talking to these men in private that they are free to admit that their work is extremely competitive; though, as one gets on, there are many happy friendships that help out Actually there are very few G P 's with an income of under, say, £1000 (gross) who are not seriously overworked—unless their income is extremely small. One seldom has time to do any serious reading or study, because one is so tired. One dare not risk losing a case, because it may lead to considerable loss of income Quite a small slip, or inability to attend may lead to great loss I bought a practice from a man who refused one night to attend a child, actually he was so overworked that he was absolutely unfit, and knew it The child died, and the man was censured for not rushing off. In the same practice I was called out to a patient with serious hæmorrhage and I was utterly unable to think, simply because I was so overworked It is at such moments as this that one realises how strenuous the life may be, and one never dares to refuse on account of probable loss of income Besides the competition, there is also the risk of some legal proceedings I omitted, once, to have a radiogram taken of a damaged little toe and had much difficulty in putting things right

Actually, until established, one has to get into the way of assessing all patients from two points of view, will they talk and recommend, and will they be profitable? This is very wrong and wicked, but bills, rates and taxes come in inexorably

The rate for panel work is extremely low, but it has two advantages The first is that each panel patient has dependants, the second and greater is that the cheque arrives absolutely to date, on the same morning as the quarter's bills Until one is established, accounts are the thought in one's mind more than any other, and so, one dare not risk losing a patient On the credit side, I must add the fact that working in an area with far too many doctors in it, under conditions of the keenest competition, I never experienced anything that was not correct To a great extent medical etiquette is absurd, but I am certain that it serves the very good purpose of making a serious competition tolerable—almost pleasant

As I say, I know no G P who does not realise that his profession is highly competitive I feel certain that it is only for the best that the true position should be known and recognised I must add that it would not make the slightest difference to me, or my income, however much more competition there was I have one foot in the grave, and no longer do much work

I am, Sir, yours faithfully,

GENERAL PRACTITIONER.

London, S W.20, Feb 24

REFUGEES IN FRANCE

SIR,—The British Red Cross Society have received report from their representative, Major General ir John Kennedy, who is now at Perpignan inquiring nto the question of relief for the Spanish refugees ho have crossed the frontier into France Thousands f them need relief of all kinds but the very urgent emand is for blankets, shirts, pyjamas, vests and ants Money is required at once to provide supplies f these articles and the British Red Cross Society ill be glad to receive donations to enable help in his direction to be sent immediately to Perpignan. heques, &c, should be addressed to The Hon ir Arthur Stanley, British Red Cross Society, 4, Grosvenor Crescent, London, S W 1 and marked "Spanish Relief Fund"

We are, Sir, yours faithfully,

ARTHUR STANLEY,
Chairman Executive Committee

EBBISHAM,
Chairman Appeals Committee

Feb 28

SIR,—Two months ago we launched an appeal or the purpose of helping doctors and nurses who ave worked in Government Spain and who are now nable to return to their countries We wish to hank all those who have contributed to the fund

Most of the government medical personnel are ow in the concentration camps in southern France They are looking after the sick and wounded of the Spanish Republican Army, carrying on their work under the most difficult conditions We had a letter rom a Hungarian nurse, who says "The conditions n the concentration camps are too ghastly to describe We knew it would be bad, but we didn't imagine hat it would be quite so bad The food consists of one loaf of bread between five of us for 24 hours, our patients get no more We are either going to die of hunger or else perish from the cold There are no blankets, and we sleep on the open ground Please send us all the help you can"

Needless to say, all the money we have collected has already gone to the south of France It was merely a drop in the ocean, but it at least held out hope to our unfortunate colleagues and friends We feel that it is our duty to do everything in our power to help the people who with such self sacrifice and devotion abandoned their personal interests two and a half years ago and have since tirelessly persevered in their humanitarian work We feel that your readers will not fail us if we ask again for contributions for that purpose

All contributions should be sent to the hon treasurer, Dr C F Hill, 162, Kingston Road, Merton Park, S W 19

We are, Sir, yours faithfully,

C F HILL, L CROME,
ALEXANDER TUDOR HART, G B SHIRLAW,
A L COCHRANE, H BRADSWORTH

Feb 25

SPEECH DEFECTS

SIR,—The remarks on p 489 of your last issue, about stammering, its cause, and the suggested method of correction, will interest all who are concerned with speech therapy, but I cannot agree with Mr T C Norris's theory that stammering is caused by speech being outpaced by thought The following experiment will show that thought always outpaces speech —

Read silently a column from a newspaper and time yourself very carefully While you are reading you are also making mental comments and deciding whether you endorse or disagree with the various statements, thus your mind is working more quickly than your silent reading Now read the same column aloud, using short phrases such as are used in conversation, and compare the time taken with that taken when reading silently This experiment will give some indication of the relative speeds of speech and thought

Mr Norris advocates correction by thinking of the "sound" of each word With this system I am in complete agreement, having used it for some thirty years, but it is not original, having been in continuous use for at least eighty eight years We all know that a stammerer, if musical, can sing fluently, the obvious reason being that he is concentrating on the "sound" of his words In 1880 A G Bernard wrote "the slower and more deliberate his articulatory efforts, the more perfect they will be In singing, where the movements of these parts are slower, and the notes are sustained, stammering rarely, if ever, occurs" In 1894 John Wyllie said "When a primary demand for voice is made, as in song, the difficulties of the stammerer can be made to disappear," and "A general injunction to the stammerer that, in speaking he should employ a full tone of voice is always of use to him"

These writers held the view that stammering was caused by word formation outpacing voice production and they unanimously advised concentration on voice control The same advice is given in "Index of Treatment," editions 1932, 1936, and 1939

I am, Sir, yours faithfully,

H St. JOHN RUMSEY,
Speech Therapist and Lecturer at Guy's Hospital

Feb 27

PARLIAMENTARY INTELLIGENCE

ON THE FLOOR OF THE HOUSE

By MEDICUS, M.P.

ONE of the main topics in which Parliament is interested this week is the muddle in the A.R.P. arrangements. There has been and is very great activity in all departments, but there has been muddle—and continues to be. At the same time there is less than may appear; the apparent muddle is partly due to the unwillingness of the powers that be to tell the ordinary man, whether he be hospital surgeon or air-raid warden, what they are up to.

The arrangements for A.R.P. as far as doctors are concerned—their personal service, that is—are made. Ninety-five per cent. of the profession are card-indexed, and the central emergency committee at B.M.A. House is in a position to say how many doctors are available for any definite requirement. The Emergency Medical Services Memorandum No. 2 published for the Ministry of Health this week by the Stationery Office gives an outline of a big plan which will make 200,000 hospital beds available in the first 24 hours of a war and a further 300,000 very shortly afterwards. But it is typical of the unwillingness of the authorities to let out information that this publication has been delayed so that it is doubtful if its contents will be known to M.P.s generally in time for the A.R.P. debate.

The cumbrous procedure of the civil service and the apparent reluctance with which information is given out has become a serious handicap to Parliament. There is of course some justification for the civil service; many of them are real experts at their jobs, and they know, although they respectfully conceal the fact at official interviews, that parliamentarians are not. Many of the civil service distrust Parliament, just like Ministers of the Crown who are happiest when Parliament is not in session. If Parliament seems suspicious of the motives and intentions of the Government it is largely the Government's own fault for not being franker and more explicit in statement. But then Parliament is a very nineteenth-century institution—like the Houses of Parliament themselves—and with the qualifications of a bone-setter is trying to do work which needs modern training and technical specialisation. It is safe to say that the purely medical side of A.R.P. is satisfactory because it is in the hands of a medical committee meeting at the B.M.A. outside of Parliament and knowing its job. The hospital organisation in war-time will also be satisfactory so far as it goes, but whether it will go far enough depends partly on Parliament, partly on the county authorities in the country, partly on the Ministry of Health and partly on the medical profession. The profession ought to have a larger share of control, because they know the job and because if they do not have this control the services of individual doctors and of individual hospitals are not likely to be used to the best advantage.

The need of the scientifically trained mind in Parliament is very great—the whole of this A.R.P. muddle shows it. Civilian defence is starved because its importance is not understood.

It is not much more than two years since A.R.P. and civil defence measures in general began to be seriously taught to the population in this country. In the autumn of 1936 the first medical A.R.P. instructors of the medical, nursing and allied professions began work. But only at the time of the September, 1938, crisis was a handbook on A.R.P. distributed to the general population, although it had been ready for over twelve months—and only at the last minute were protection trenches dug. Now behind the scenes, there has been a very great activity as this Ministry of Health memorandum on emergency hospital arrangements indicates. But there is a great deal more that might be made public.

The proposed division of the country into regions which can function independently if cut off from other areas by the destruction of communications by air attack implies a similar division of medical arrangements. The report indicates that hospitals in large cities will become little more than first-aid posts and that base hospitals will have to be at comparatively long distances away from vulnerable areas. This inevitably means not only the spreading of medical and surgical staff over a number of hospitals but also the spreading of instruments, X-ray apparatus and all the technical equipment of hospitals over a number of hospitals. For a time the whole medical profession and the hospital institutions will be thrown into one melting-pot and it is very important that *the medical profession, through its representative* bodies, should have a big share of control. The fact that the B.M.A. has been able to prepare a list of doctors for use in a war which contains the names and particulars of 95 per cent. of the profession given voluntarily and individually means that doctors are not only scientifically trained people but are also disciplined—voluntarily disciplined. No political organisation of familiar type, no trade-union and probably no other professional association, can approach the efficiency of this organisation. This organisation is a great power and might be used with much greater effect than at present in public affairs and in Parliament. It should be given a much greater share of the control of A.R.P. arrangements. It might, for instance, be asked to organise and supervise the service of air-raid wardens.

FROM THE PRESS GALLERY

Social Services

In the House of Commons on Feb. 22 Mr. GEORGE HALL urged the necessity for an inquiry into the working of the social insurance services. In 1910 all the provision made by the state and the municipalities to deal with social insecurity amounted *to £7,500,000 for old-age pensions* and £10,000,000 for poor-law relief. In 1936, the latest available full year, the expenditure under the various social insurance services, including public assistance relief, amounted to £268,000,000—ten times that of thirty years before. Although that figure seemed large it was less than 5 per cent of the total income of the country, and when it was realised that the beneficiaries under the various schemes represented 20 per cent of the total population, the sum appeared very small indeed. The State itself got off very *lightly for its* direct contribution was only £130,000,000, the remainder being divided among workpeople and employers. He suggested that all these services should now be brought under one department with a minister of social services at its head. *Under a* coördinated system of administration there would be an abolition of many of the anomalies, and instead of a lowering to the lowest there would be an increase *to the highest benefit paid.* Who would say that the nation had not the money to meet these needs? We were the wealthiest nation in the world.—Sir ARNOLD WILSON thought that the task of a royal commission with terms of reference so broad as

Mr Hall suggested would be beyond the wit of man It would involve half the Cabinet, and something like half the total activities of Whitehall Social insurance schemes were nowhere so complete, so efficient, or so economical as they were in the totalitarian states The reason was that to make the schemes fully efficient and complete involved a great element of regimentation, which had its perils as well as its advantages He hoped one day to see family allowances an integral part of our social system He also hoped to see the national health insurance scheme further developed, but he questioned whether it should be extended by raising the income limit On the other hand, the present system of administration through 917 approved societies and 6500 actuarially independent branches was wasteful, and the time was approaching for a national system to be devised The provision as regarded dental benefit was most unsatisfactory The Minister would perhaps say that the cure for dental trouble was not the services of the dentist, but larger supplies of milk But the wealthier classes were just as badly off as the poor in the matter of teeth The last report on teeth by the London County Council's medical officer certainly gave that impression The only reason why the well-to do did not suffer so much was that they spent three times as much on their dentists as on their doctors, and they counted that money well spent He suggested that the proper way to remedy some of the anomalies that existed was by establishing a statutory commission such as already existed in connexion with unemployment, with power to make modifications by orders in council, subject to ratification by the House of Commons

Dr EDITH SUMMERSKILL said that nobody had mentioned the claims of the dependents of the insured workers for national health insurance benefit The children obtained some measure of supervision at school, but it was not in any way comprehensive The mothers of the children were absolutely ignored The married woman worker after the age of 23 joined the most neglected section of the community so far as health was concerned The life of many poor women after that age was an obstetrical steeplechase She was no sooner over the hurdle of one confinement than she was facing another The expectation of life of women at that period was less than that of men, and yet they were denied any form of state health insurance Could it be wondered at that hospital outpatient departments were crowded with these women who were the end-products of this neglect? The medical profession would welcome the inclusion of this new category

Mr BERNAYS, parliamentary secretary to the Ministry of Health, said that the Government were fully alive to the need for further extension of the social services In spite of the unprecedented calls upon the Exchequer for rearmament they were now spending £50,000,000 a year more on social services than when the Government came into office To double old-age pensions would cost £71,000,000, while the reform mentioned by Dr Summerskill would cost the country £10,000,000 The proposal for pensions for wives at 60 would cost another £1,000,000 These reforms could not be undertaken without substantially increasing taxation, and it would be a rash man who said that that would be good for the country The Chancellor of the Exchequer also had to keep in mind that the young must keep the old Owing to the high birth rate at the end of the nineteenth century and the low rate now, and the longer expectation of life, more and more old people had to be supported and there were fewer and fewer young workers to maintain them The power to increase old age pensions depended upon the extent to which they could equip young men and women for the struggle to maintain and extend Great Britain's power and influence in the markets of the world That was being done in the maternity and child welfare services, in the school medical inspections, in the consulting rooms of panel doctors, in the employment exchanges, in the training centres, and in the educational services He did not think that a case for an inquiry had been made out He agreed with Sir A Wilson in regard to the importance of dental benefits, but pointed out that two-thirds of the insured population now had an opportunity of receiving dental treatment —Mr T SMITH said that the present insurance medical service was purely a general practitioners' service, which meant that it stopped short just where the need was greatest It should cover the treatment of disease from the general practitioner to the specialist or hospital, if need be —Sir F FREMANTLE said that the medical profession knew the danger of suggesting that these things could be done merely by spending money The thing to do was to bring public opinion along to help together with such money as was required

Holiday Camps

In the House of Lords on Feb 22 Viscount ASTOR raised the question of the Government's proposals in regard to camps The value of these camps, he said, had been proved in the Special Areas, where, according to the report of the Commissioner for 1938, the average child attending camp for a fortnight had increased 3 lb in weight The report for Scotland stated that the provision of camps for unemployed men and their families was one of the most useful and satisfactory pieces of work which the Scottish Council had tackled —Earl DE LA WARR, president of the Board of Education, said that the camps could be used as schools, so that town children could spend say a fortnight in them during term-time, or they could be used for school holidays They might take children who were suffering from minor bad health and needed building up or might be let to boys' or girls' clubs, to industrial firms for their employees, or to trade-unions This great social experiment arose out of the tragic need for war preparation, but that was no reason why they should not see that they got the best value out of it for the constructive purposes of peace

Makerere College in Uganda

In introducing a supplementary estimate for the Colonial Office in the House of Commons on Feb 23 Mr MALCOLM MACDONALD, Secretary of State for the Colonies, said that the establishment of Makerere College was a great step forward in the development of higher education in East Africa The government of Uganda had voted £10,000 in support of the College, and the native administrations in Kenya and Tanganyika might also give it financial support The Empire Cotton Growing Association was making a grant of £10,000 towards the biological laboratory In order to endow the College the government of Uganda was giving £150,000, the government of Tanganyika £100,000, and the government of Kenya £50,000 It was proposed that the United Kingdom Government should complete the fund of £500,000 by contributing £100,000

QUESTION TIME

WEDNESDAY, FEB 22

Motor Drivers and Alcohol

Mr MATHERS asked the Minister of Transport if he recognised that a large proportion of road accidents occurred as the result of drivers of motor vehicles drinking intoxicating liquor, though they were not so affected as to be described as under the influence of drink, whether he would arrange to have the number of such cases shown in accident returns, and whether he proposed to take steps to ensure that persons partaking of alcoholic drinks should not drive a motor vehicle within a certain stipulated time thereafter —Mr BURGIN replied I am not inclined to believe that a large proportion of road accidents can be attributed to drink The extent to which the consumption of alcoholic liquor by drivers of motor vehicles may have been the contributory cause of accidents is, I am afraid not susceptible of demonstration by statistics, nor do I think that trustworthy information on the point would be obtainable in the manner suggested. In the special investigation made in 1936–37 it was found that out of nearly 200,000 accidents 1307 were attributable to drink or drugs as a primary cause, and in 567 cases the driver was the person affected. As at present advised I am not prepared to introduce legislation under which it would be an offence to drive a motor vehicle within a specific period after the consumption of intoxicating liquor

Mr MATHERS: Is it not the real snag in many of these cases that motor drivers are charged with the minor offence of careless driving because of the fear in the minds of those who are bringing the action that a conviction would not be secured otherwise?—Viscountess ASTOR: Will the Minister bear in mind the evidence given before the committee set up by the late minister of transport and also the recommendations of the medical committee who looked into this matter and said that something should be done?—Mr JOHNSTON: Has the Minister considered the evidence submitted by the Scottish sheriffs in the last two years as to the preponderance of serious accidents arising from drunken drivers?

Mr. BURGIN: I hope the House will not think that in anything I have said I desire in any way to condone the offence of driving under the influence of drink I wish that to be as seriously punished as possible What I am endeavouring to deal with is the much wider problem as to whether there is a large or growing proportion of accidents due to drink. The evidence does not support that statement. I will willingly examine information and statistics from any quarter, because this is a real problem, and if we can solve it so much the better

Pulmonary Diseases on the Gold Coast

Mr SORENSEN asked the Secretary of State for the Colonies whether, in view of the report of the registrar of births and deaths of the Gold Coast that pulmonary diseases accounted for 165 out of every 1000 deaths in that territory, and that a quarter of the total deaths registered occurred between the ages of 24 and 25, he would ask for a report on the causes of this position—Mr MACDONALD replied: The figure mentioned by the hon Member in the first part of the question refers only to non-tuberculous diseases of the respiratory system With regard to the second part, the age-group appears to be 24–45, not 24–25 This age group includes practically all immigrant labourers, many of whom are said to have little resistance to pulmonary infections. The serious nature of the pulmonary disease problem is recognised and is discussed in the report of the medical department for 1937, a copy of which is being placed in the library of the House.

Foreign Nurses in British Hospitals

Mr. MCENTEE asked the Home Secretary how many applications he had had from local authorities or private hospitals to grant permits to foreign nurses to work in hospitals in Great Britain; how many permits had been granted during the past year, and how many were awaiting decision—Mr. GEOFFREY LLOYD, under-secretary, Home Office, replied: The Ministry of Labour issued 224 permits during 1938 to hospitals to employ foreign nurses, and in addition made 98 favourable recommendations to the Home Office in respect of persons already in the United Kingdom who wished to enter hospital posts. In 89 cases the Ministry of Labour was unable either to issue a permit or to make a favourable recommendation to the Home Office Fifty cases are outstanding. In addition to the cases dealt with under the normal procedure, arrangements were made in October with the nursing subcommittee of the Coördinating Committee for Refugees to allow German women to undertake work as nurses in hospitals in this country, and visas were authorised in 63 cases up to the end of 1938.

THURSDAY, FEB 23

Malnutrition among School Entrants

Mr. GEORGE GRIFFITHS asked the Parliamentary Secretary to the Board of Education the number of school entrants for the 12 months to the last convenient date found on inspection to be suffering from malnutrition or to require dental treatment, respectively, and the percentage in both cases to the total entrants—Mr. KENNETH LINDSAY replied: Of 571,032 entrants to public elementary schools in England and Wales medically examined during the year 1937, the latest period for which figures are available, 3314 or 0 6 per cent were found to have bad nutrition and 58,267 or 10 2 per cent. slightly subnormal nutrition. Separate figures are not available to show the percentage of entrants who required dental treatment

Viscountess ASTOR: Is it not true that 16 per cent of children entering the elementary schools are suffering in some way from physical defects and that if they had had the advantage of nursing schools it would be only 7 per cent.

Mr LINDSAY: The standard is improving.

Survival of Retired Civil Servants

Mr AMMON asked the Secretary to the Treasury what was the average length of life of civil servants retiring at 60 years of age—Captain EUAN WALLACE replied. The average length of life of established civil servants retiring at age 60 is: men, 16 years; and women, 18 years.

Training of Women Refugees as Nurses

Mr HOLLINS asked the Minister of Health what steps had been taken or were contemplated by local authorities to offer to women refugees any opportunity for training as nurses in the hospitals under their control.—Mr. ELLIOT replied: I am informed that 19 town councils and 3 county councils have agreed to admit a limited number of refugees as probationers in their hospitals, and that suitable candidates are being allocated by the Coördinating Committee for Refugees.

Water-supply and Drainage in Evacuation Areas

Colonel HENEAGE asked the Minister of Health whether he was aware that in many rural districts to which it was proposed to evacuate large numbers of the population, there were at present no adequate arrangements for a public water-supply, and no adequate system of sewerage or sewage disposal sufficient for the needs of the present population, that there was a grave apprehension on the part of many local authorities in rural districts that the absence of these facilities was likely to have serious consequences, the risk of which would be accentuated by the removal of large numbers of the civil population from congested areas, and what steps the Government proposed to take by way of grant from national funds, to deal with these matters—Mr ELLIOT replied In the evacuation arrangements, steps will be taken to avoid areas where insuperable difficulties are likely to arise on account of water-supply or drainage It is not considered that the number of such areas will be large I am not at present satisfied that there is a case for grant from national funds for the purpose of improving water-supply or drainage in rural areas as part of the evacuation scheme Representations, however, have been made to me in the matter by the county councils and rural district councils associations, and I am seeing a deputation from them on March 7.

Whooping-cough Experiments in Germany

Sir ARNOLD WILSON asked the Minister of Health whether he had received details of the extensive experiments carried out at Stuttgart in curing whooping-cough in children by flights at high altitudes; and whether it was proposed to make similar experiments in low pressure air cabinets in this country, in view of the fact that whooping-cough was responsible in 1936, in England and Wales, for three times as much infant mortality as all forms of tuberculosis—Mr ELLIOT replied: I am aware of these experiments, the progress of which is being followed with interest in my department With regard to the second part of the question, I am not aware that any experiments in the treatment of whooping-cough by means of low-pressure air cabinets have been undertaken, and I am advised that such experiments would be attended by considerable risks

Hospitals and Emergency Accommodation

Sir THOMAS MOORE asked the Minister of Health what was the present approximate capacity of all hospitals in Great Britain, including and excluding mental hospitals; and whether it was proposed to take any steps to increase this capacity in connexion with the emergency arr ments, or in connexion with the schemes for erecting camps —Mr ELLIOT replied The number of hospital beds in England and Wales is approximately 502,000, including mental hospitals, or 371,500, excluding those hospitals Of the latter figure some 120,000 beds can be freed for use by casualties in an emergency, and sufficient new beds have been obtained or are on order to increase the capacity by 80,000 A further 100,000 beds could be accommodated in existing hospitals if necessary, and plans for new hospital units are under consideration The 50 camps at present proposed are primarily to supplement billeting accommodation in an emergency, not hospital accommodation As to the Scottish figures, I must refer my hon friend to the Secretary of State for Scotland

New Standards of Lighting in Factories

Mr **ROBERT MORRISON** asked the Home Secretary when it was proposed to issue regulations prescribing a standard of sufficient and suitable lighting for factories as required by part I, clause 4, of the Factories Act, 1937 —Sir **SAMUEL HOARE** replied I have appointed an expert committee to assist me in considering what standards can properly be prescribed, and they submitted last autumn an interim report recommending various principles for securing good general lighting As the next step in getting these principles translated into practice, a leaflet has been drawn up and will shortly be issued to factory occupiers throughout the country summarising the committee's recommendations and urging them to have the lighting arrangements in their factories reviewed with reference to the principles indicated As soon as employers have had reasonable time to go into the matter I would propose to follow it up by issuing draft regulations on the subject This procedure is, I am advised, more likely to achieve satisfactory practical results than the formulation of a draft legal code at this stage

MONDAY, FEB 27

Medical Services in Spanish Refugee Camps

Lieut -Commander **FLETCHER** asked the Prime Minister if his attention had been called to the misery existing in the refugee camps in France, that rainproof shelter existed for only 10 per cent of the refugees, that medical services were rudimentary, that a third of the refugees were suffering from stomach troubles owing to food, and that no possibility existed of isolating infectious diseases such as scabies and if he would in consultation with the French Government, dispatch a mission to view these camps on the spot and to make the necessary offers of assistance to the French authorities

Mr **NOEL BAKER** asked the Prime Minister whether he could make a statement concerning the conditions in the Spanish refugee camps at Perpignan, and if he proposes to make any further grant of assistance —Mr **BUTLER**, under secretary for foreign affairs, replied As I stated on Feb. 23 His Majesty's Government are in consultation with the French Government on this subject It will be appreciated that any steps which it may be decided to take must receive the full approval of the French Government, and in these circumstances a statement from me today would be premature I can, however, assure the House that the matter is receiving our most sympathetic consideration and I hope very shortly to be able to make a full statement

Gas Attack Protection for Infants

Mr **GALLACHER** asked the Lord Privy Seal whether any progress had now been made in devising and producing a satisfactory form of protection from gas attack for infants —Sir **JOHN ANDERSON** replied Yes, Sir Satisfactory articles have been designed, and contracts have been placed for their production

Advertisement of Cancer Treatment

Mr **GROVES** asked the Minister of Health whether it was his intention to prohibit, under clause 4 of the Cancer Bill, registered medical practitioners referring to any article calculated to lead to the use of that article in the treatment of cancer when speaking to audiences or writing for groups of people composed of persons other than those mentioned in subsection (4) (*a*) and (*b*) —Mr **ELLIOT** replied : In so far as such statements as the hon Member has in mind could be held to be advertisements, I am advised that, subject to the exceptions contained in subsection (5), the effect of the clause is as stated by the hon Member

TUESDAY, FEB 28

Radium in Cornwall

Mr **BEECHMAN** asked the Secretary for Mines whether, in view of the large quantity of pitch blende in the west of Cornwall, he would cause a survey to be made for the purpose of ascertaining whether radium could be obtained therefrom in sufficient quantity to justify development —Captain **CROOKSHANK** replied I am advised that although pitch blende is known to occur in several places in Cornwall very few deposits have been of commercial value These deposits have now been worked out or contain such low-grade ores that they do not justify processing for the recovery of radium The Geological Survey of Great Britain, for which my noble friend the Lord President of the Council is responsible, is now completing a comprehensive investigation into the mineral resources of Cornwall, and in these circumstances it does not appear that any advantage would accrue from the institution of a separate survey of the kind suggested

Army Recruits Rejected

Mr **MCENTEE** asked the Secretary of State for War what number of men applied to enlist in the Army for the twelve months to the latest available date, what percentage were rejected on medical grounds, and what was the percentage of the applicants for enlistment rejected on the ground of defective vision —Sir V **WARRENDER**, Financial Secretary to the War Office, replied Of the 61,552 applicants to enlist into the Regular Army during the year ended Dec 31, 1938, 12 25 per cent were rejected by examining medical officers The percentage of the total number of applicants who were rejected on the ground of defective vision was 1 96 during the twelve months ended Sept 30, 1938, which is the latest date to which figures relating to the causes of medical rejection are available

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED FEB 18, 1939

Notifications —The following cases of infectious disease were notified during the week Smallpox, 0, scarlet fever, 1637, diphtheria, 1212, enteric fever, 20 (25 "expected"), pneumonia (primary or influenzal), 1919, puerperal pyrexia, 195 ; cerebro-spinal fever, 44, acute poliomyelitis, 6, encephalitis lethargica, 1, dysentery, 24, ophthalmia neonatorum, 70 No case of cholera, plague, or typhus fever was notified during the week

The number of cases in the Infectious Hospitals of the London County Council on Feb 24 was 3352, which included Scarlet fever 659, diphtheria, 8[illegible]9 (carriers, 47) measles, 5 whooping-cough 828 puerperal fever, 24 mothers (plus 13 babies), encephalitis lethargica, 306 poliomyelitis, 3 At St Margaret's Hospital there were 18 babies (plus 9 mothers) with ophthalmia neonatorum

Deaths —In 126 great towns, including London, there was no death from smallpox, 2 (0) from enteric fever, 7 (0) from measles, 1 (0) from scarlet fever, 14 (4) from whooping-cough, 33 (5) from diphtheria, 40 (15) from diarrhœa and enteritis under two years, and 255 (37) from influenza The figures in parentheses are those for London itself

The deaths attributed to influenza are again on the down grade the totals for this week and the seven preceding weeks (working backwards) being 255, 263 210 173, 223 214, 141, 89 Of these 255 deaths 108 were reported from the South-eastern Area Ilford contributing 9, Croydon 6 89 from the Northern Area, Manchester contributing 13 Sheffield 12, and 61 from the Midland Area Bristol contributing 13 Birmingham 10, Nottingham 6 Ipswich and Norwich each reported 4 Cardiff had 2 deaths from measles. Fatal cases of diphtheria were scattered over 24 great towns Liverpool reporting 3, Sheffield, Stanley Birmingham each 2 The deaths from enteric fever were at Hastings and Liverpool

The number of stillbirths notified during the week was 241 (corresponding to a rate of 37 per 1000 total births), including 28 in London.

OBITUARY

FRANK GERARD CLEMOW

C.M G., M D. EDIN., D P.H

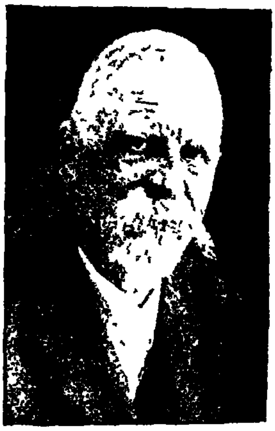
Dr. Clemow, who died in London last Saturday at the age of 76, had spent so much of his life in Russia and Turkey as to become a recognised authority on international health. Born in 1863 and educated *at the Royal Institution School at Liverpool, he* graduated in medicine with honours at Edinburgh in 1885 After holding some minor appointments in Scotland he went to Kronstadt as resident medical officer to the British Seamen's Hospital and remained there for ten years, which covered the big cholera epidemic of 1892, a study of which he contributed to the transactions of the Epidemiological Society He became interested in the medicinal waters and muds of Russia and wrote an account of these But the breadth of his knowledge appears best in his account of medicine past and present in Russia, which appeared as a supplement to THE LANCET of Aug 7, 1897, and of which his authorship was not revealed at the time Clemow left Russia to become physician to the British Embassy at Constantinople, and there he became *associated with the famous Board of* Health, the scope of which covered sanitary services in the Levant and on the Turco-Persian frontier as well as the supervision of the Mecca pilgrimage and the new Hedjaz railway. Each of these services administered a series of lazarets, disinfecting stations and sanitary offices Clemow was British delegate to the board from 1900 until the foreign element was eliminated from it in 1914. He knew more than anyone else of the health problems of the Shiah pilgrimage, of the carriage of dead bodies to the cities of Iraq, and of the sanitary defences of the Suez Canal. With this equipment his services were in request in various directions throughout the war years. At first he was in charge of the red-cross missions to Montenegro and later to Rumania and Russia, and in 1918 he was appointed director of relief work in Serbia During these varied tasks he accumulated a number of unusual distinctions such as the Montenegrin order of Danilo I and the Russian order of St. Anne 2nd class with swords. After his retirement from active medical duties he was frequently consulted by international bodies. He had been British delegate to various sanitary conferences in Paris and was a member of the British delegation at the Lausanne Peace Conference in 1923–24 He was also a contributor to the transactions of the Royal Geographical Society, of which he was a lifelong member, and was the author of a manual on the geography of disease, and of the section on the same subject in Allbutt and Rolleston's "System of Medicine."

Clemow's work ranks with that of such men as Ruffer, Balfour, Barère, Granville and Buchanan, to whom this country and western Europe largely owe their almost complete immunity from the classic scourges—plague, cholera and typhus—which still cause such havoc in the east.

HUGH REEVE BEEVOR

BT., M.D. LOND , F.R.C P.

Sir Hugh Beevor of Hargham, Norfolk, consulting physician to King's College Hospital, died on Feb 24 at the age of 80. He was the second son of Sir Thomas Beevor, the fourth baronet, and succeeded to the baronetcy in 1885, his elder brother having died six years before He was educated at Felsted and King's College, London, qualifying in 1882 and taking his M R C P. in 1888 After being house-physician and medical registrar at King's College Hospital he was elected to the staff as assistant physician in 1890 In 1896 he succeeded John Curnow as dean of the medical faculty of King's College, a post he held for two years At this time he was also on the staff of the Victoria Park Hospital and saw many tuberculous patients there and in private; in 1899 he delivered the Hunterian Society oration on the declension of phthisis Beevor was at one time examiner in medicine to the Society of Apothecaries, and he represented the society on the General Medical Council He was medical officer to the Norwich Union insurance company, and later became a director. In 1909 he was elected a fellow of King's College, and in 1914 he became consulting physician to King's College *Hospital on retiring from the active staff.*


[Elliott and Fr

Beevor was an authority on horticulture and more especially on trees In London he was often consulted by the furniture trade when the identity of some wood was in doubt After his retirement he was able to indulge this interest to the full, and he came to know every inch of his family estate at Hargham and the history of the rare trees planted there by his father and himself. He travelled extensively in Canada, Australia and Japan, bringing back unusual specimens and seeds, and he was never happier than when conducting a party of friends or a learned arboricultural society round his gardens and woods In 1895 he married Emily, daughter of Sir William Foster, who died in 1909, and he leaves one daughter and a son, Commander Thomas Lubbock Beevor, R.N.

LEWIS JOHN HOBSON

M D. LOND , F.R.C S.

THE death of Dr. Hobson on Feb 22 at the age of 87 ends a life of long and useful service Born at Eaton Socon, Huntingdonshire, he was educated at Bedford School and at University College, London, where he had a distinguished student career, taking gold medals in surgery, midwifery, materia medica and comparative anatomy. He took honours in his final M B. in 1875, and became F.R C S. in 1877 and M D. in 1882 After qualifying he filled house appointments at Bristol, Newcastle-on-Tyne, and Scarborough, and later practised in York, where he was physician to the York County Hospital In 1885 he settled in Harrogate, and was appointed physician *to the Royal Bath Hospital In 1892* he joined the consulting staff and in 1935, on the completion of fifty years in the service of the hospital, he was elected vice-president.

Though an F.R C S. Hobson never practised surgery: his interests lay in spa practice, especially in skin diseases, on which he wrote occasional papers Of a retiring disposition, he took little part in public life, his energies were largely devoted to the welfare of the Royal Bath Hospital. He was one of the founder members of the Harrogate Medical Society, of which he became president in 1896 For some years he worked in close association with the late Dr George Oliver, prior to the latter's retirement from Harrogate Never robust, he had little interest in physical recreation His main hobbies were cycling and fishing, and though he began somewhat late in life he became a keen and skilful angler During the last few years he was partially crippled with arthritis of the hip and in consequence gradually gave up his practice

Dr Hobson was a kindly, painstaking physician, and a fine representative of the older school of spa practitioners He was married twice but had no children, and his widow survives him

THE LATE PROF GRAHAM SIMPSON

Prof Grey Turner writes In your obituary notice of Graham Simpson you mentioned several of his examinerships but Durham was omitted Simpson acted as my external examiner in that University for several years and I always used to look forward with great pleasure to his visits He was a very sound examiner and held the balance very justly as between the necessary standards and the candidates with whom he was popular When he got hold of a good man he thoroughly enjoyed himself, especially if he felt that it was legitimate to branch off into some perhaps rather intricate problem He loved his work at the College of Surgeons, both while on the court of examiners and on the council, and nothing short of the very serious illness which overtook him last year would have induced him to absent himself from a single meeting He was always delightfully conciliatory, though at the same time if he felt that some certain course was the correct one, it was not easy to alter his decision He was very pleased at being selected to deliver the Bradshaw lecture and was already actively engaged in its preparation at the time of his death

As a companion on foreign tours Simpson was very delightful for he had a surprising knowledge of European history and a great appreciation for things beautiful, and especially if mellowed by age It is a great pity that in his busy life he did not find time to write more for he could express himself very well indeed, and his few papers showed a high literary standard and were interesting and valuable contributions to surgery He was fond of the classics and was accustomed to peruse his favourites as a relaxation No one could be more modest about his very considerable attainments and no one was ever a truer friend, and his loss will be greatly felt by a large section of the profession

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Dr JOHN HENRY HARRIS of Dartmouth has died at the age of 77 He did his medical training at St Bartholomew's Hospital and qualified in 1883 In his early student days he was on board the *Princess Alice* when she sank in the Thames with the loss of over 600 lives In 1896 he took his D P H Cambridge and was then appointed medical officer of health for Dartmouth He was also medical inspector of seamen to the port of Dartmouth During the late war he served with the Royal Army Medical Corps in India with the rank of lieutenant-colonel

Dr JAMES DIXON who died this week at the age of 72, was born in Glasgow and educated at Anderson and St Mungo's Colleges He qualified in 1893, and after house appointments at the Glasgow Royal Infirmary and at Town's Hospital, became medical officer to Glasgow prison, a post he held until 1913 In 1902 he was appointed medico legal examiner for the Crown in criminal cases, and in 1913 prison commissioner for Scotland Dr Devon was an authority on all branches of criminology, and wrote some important papers on the treatment of offenders

Prof ARNE KISSMEYER, one of the most prominent of the younger generation of medical men in Denmark, died on Feb 3, twelve days before his 50th birthday His studies abroad were conducted mainly in Switzerland and France At home his numerous appointments in general hospitals were followed by service for many years in the Finsen Institute and the State Serum Institute A second professorship in dermatology at the University of Copenhagen having been created in 1938, he was appointed to it He had already in 1932 succeeded Prof Ehlers at the fourth department of the municipal hospital His publications in Danish and French on dermatology and the venereal diseases were numerous, and his personality as a lecturer was inspiring

Dr JOHN ROSS HOME ROSS, who died in London on Feb 10, had practised for the last forty years at Lower Kingswood, Surrey He graduated from Edinburgh in 1886 and for some time remained there as clinical assistant to the dermatological department of the Royal Infirmary and as physician to the Western Dispensary Before settling in the south of England he went out to Rangoon as physician to the Dufferin Hospital there

MEDICAL NEWS

University of Cambridge

On Wednesday, March 8, at 5 P M, Dr H E Magee of the Ministry of Health, will give a lecture in the physiological laboratory He will speak on methods of studying problems of nutrition

On Feb 25 the following degrees were conferred —

M D—Arthur Willcox

M B B Chir—M J Ingram, C G Rob, P O Conran, and Gerald Bourne (by proxy), J I H Laurie, Arthur Leese, E W O Adkins, James Arnott and K G Bergin

Society of Apothecaries of London

At recent examinations the following candidates were successful —

Surgery—A N Boyle, H J S Coldham A Dunkerley, D S Edwards K P D Griffiths, E L Moll, V N Stevenage, W E Swanston, and T I Thomas

Medicine—H J Dismorr, K R P Kent, and R G Ticehurst

Forensic Medicine—H J Dismorr, K R P Kent, and R G Ticehurst

Midwifery—F Batley, T Bliss N B Eastwood, D Harken, H A C Ingouville-Williams J R F E Jenkins, W Simpson, L Smith, and H F Sparling

The following candidates, having completed the final examination, are granted the diploma of the society entitling them to practise medicine, surgery and midwifery —

H J S Coldham, Univ Coll Hosp , H J Dismorr, Camb and St. George's A Dunkerley Manc , N B Eastwood, Camb and Charing Cross J R F E Jenkins Middlesex, K. R. P Kent St Mary's and T I Thomas, Lond and West Lond Hosps

Royal College of Surgeons of England

The spring course of museum demonstration is now being given at the college, Lincoln's Inn Fields London W C 2 On March 6 and 13 Dr L W Proger will describe new specimens which have been added to the museum, and on March 10 Dr A J E Cave will lecture on the anatomy of the pharynx and oesophagus, and on March 17 on the anatomy of the stomach The demonstrations are open to advanced students and medical practitioners and are held at 5 P M

University of London

Dr. H. P. Himsworth has been appointed to the university chair of medicine tenable at University College Hospital medical school

Dr Himsworth, who is 33 years of age, was educated at King James's Grammar School, Huddersfield, and at University College, London When he graduated M B in 1928 he obtained the university gold medal, and two years later he was once more awarded this distinction for his M D thesis After holding house appointments at University College Hospital he was appointed an assistant in the medical unit in 1930, and he became M.R C P in the same year In 1932 he was awarded a Beit fellowship and he held this while working at the hospital In 1935 he became first assistant in the medical unit, and in the following year deputy director Last year he was elected F R C P and this week he is delivering the first of his Goulstonian lectures to the Royal College of Physicians He has published many papers on diabetes mellitus and this is the subject which he has chosen for his lectures

The title of professor of physics in the university has been conferred on Mr. Gilbert Stead in respect of the post held by him at Guy's Hospital medical school.

Mr. L. V. Cargill, consulting ophthalmic surgeon to King's College Hospital has been appointed a fellow of King's College.

Joint Tuberculosis Council

At a meeting of this council held in London on Feb 18, Dr G Lissant Cox being in the chair, discussion took place on the draft memorandum presented by the committee (with Dr. James Watt as convener) appointed to consider the organisation of the tuberculosis service in time of war. The report envisages the necessity for the service to continue its work during war-time and to be ready to deal with the probable rise in tuberculosis morbidity, the examination of recruits and of men discharged from the forces with tuberculosis, and the movement of population by evacuation schemes Arrangements were reported for a series of postgraduate courses. A report on skiagraphic terminology presented by Dr G Jessel, the convener of a committee of five with four coöpted radiologists, draws attention to the lack of uniformity at the present time in reporting on the X ray manifestations of pulmonary disease

Among other matters to be considered by the Council are (1) major surgical treatment of pulmonary tuberculosis, convener Mr. J E H Roberts; (2) the institutional treatment of children suffering from pulmonary tuberculosis, convener Dr. Peter Edwards The following officers were elected for 1939 chairman, Dr. S. Vere Pearson, vice-chairmen, Dr Lissant Cox and Dr. D A. Powell, hon treasurer, Dr Jessel; hon auditor, Dr D. P. Sutherland, hon secretary, Dr. J. B McDougall

University College Hospital

On Tuesday, March 7, at 5 P M, Sir Walter Langdon Brown will deliver the first Suckling memorial lecture at the medical school He will speak on visceral symptoms in emotional states The lecture is open to all members of the medical profession and to medical students

The British Institute of Philosophy

An address on ethics and the supernatural will be given by the Very Rev W. R Matthews, D D, on Tuesday, March 14, at 8.15 P M, at University College, Gower Street, London, W.C 1. Cards of admission can be had from the director of studies at University Hall, 14, Gordon Square, W.C.1.

PUBLIC HEALTH

Need for a Safe Milk-supply

On Feb. 24 Mr. Walter Elliot, Minister of Health, and the Earl of Feversham, parliamentary secretary to the Ministry of Agriculture, received a deputation from the People's League of Health, introduced by Dr. C. O. Hawthorne, which urged the value of milk as a food and the urgent importance of legislation to ensure that consumers might rely on the cleanliness and purity of the milk-supply

Mr. Walter Elliot said he had received apologies for unavoidable absence from Lord Dawson—who said he believed all milk intended for human consumption should either be pasteurised or come from certified tuberculin-tested cattle—and from Lord Horder.

Sir Henry Gauvain said that it was incredible that milk, the nation's most precious food, might be supplied without restrictions as to its safety. No other food was thus exempt, and in the interests of both the community and the farmers we should ensure the safety of all who consumed it The only way of doing this was by pasteurisation

Sir Walter Langdon-Brown held that though the economic difficulties in the way of safe-milk legislation might be considerable they would not be overcome by raising false issues. It was misleading to allege that the medical profession was divided on this subject Why should the views of an inconspicuous minority against pasteurisation be so frequently quoted against the weight of opinion of the profession as a whole?

Sir John Ledingham, F R S, said that elaborate investigations had shown that pasteurisation in no way materially affected the nutritive value of milk.

Dr. Veitch Clark said that about three-quarters of the Manchester milk-supply was pasteurised, only 1 per cent of the total supply being derived from tubercle-free herds. Nearly 400 cases of non-pulmonary tuberculosis occurred each year in Manchester, and he believed that 40 per cent. of them were due to the bovine bacillus

Dr. A. S M Macgregor said that about 8 per cent of the milk entering Glasgow contained tubercle bacilli. Of the children treated at the orthopædic hospital about 20 per cent. suffered from bovine tuberculosis

Dr. Maule Horne said that typhoid epidemics had arisen from both milk and water contamination, but 95 per cent of the water used for domestic purposes was boiled, which was not true of milk A single delivery of 1600 gallons of milk had recently caused 900 cases of typhoid, including 75 deaths

Major Brennan De Vine, president of the National Medical Veterinary Association, said that milk samples in large towns showed 6–13 per cent infected with tubercle bacilli.

Mr. Walter Elliot, in reply, said that the Government were convinced that the League's proposal to ensure a safe and pure milk-supply was right and just, but there was a need for further education of public and parliamentary opinion. He had asked one of the more prominent of the younger medical men in this country to undertake the collation and review of the existing evidence on the whole subject of pasteurisation and the safety of milk-supplies, and he proposed to publish the result The People's League of Health could assist by issuing reasoned statements of the case.

Besides the speakers the deputation included Miss Olga Nethersole, founder of the league, Sir Comyns Berkeley, Prof Amy Fleming, Sir Ernest Graham Little, M.P., Sir Arthur Harden, F R S, Dr. Hawthorne, Sir Leonard Hill, F R S, Sir Frederick Hobday, Mr. Eardley Holland, Dr. R. C Jewesbury, Mr. A. Ernest Jones, Dame Louise McIlroy, Prof. F. C. Minett, Dr. Nathan Raw, Sir Milsom Rees, Mr. Louis Carnac Rivett, and Dr. V. A. T. Spong.

Medical Diary

March 6 to March 11

SOCIETIES

ROYAL SOCIETY OF MEDICINE 1 Wimpole Street, W 1
TUESDAY
Orthopædics 5 30 P M (cases at 4 30 P M) Mr S L Higgs (1) Bilateral Amputation of Legs Mr Norman Capener (2) Primary Carcinoma Arising in an Osteomyelitis Wound Mr G O Tippett (3) Bilateral Cervical Rib Mr T T Stamm (4–5) Hæmangioma of the Spine Demonstration of distraction apparatus
Pathology 8 15 P M , laboratory meeting at Guy's Hospital medical school S E 1
WEDNESDAY
Proctology 8 30 P M , Prof E D Telford Megacolon Prof J Paterson Ross and Sir Lancelot Barrington Ward will also speak.
FRIDAY
Ophthalmology 4 P M clinical meeting at the Bristol *Eye Hospital*

MEDICAL SOCIETY OF LONDON, 11 Chandos Street, W 1
MONDAY—9 P M Prof G Grey Turner The Surgery of the Gall bladder and Bile ducts (Third Lettsomian lecture)

HARVEIAN SOCIETY OF LONDON
THURSDAY—8 30 P M (26 Portland Place W 1), Mr A Tudor Edwards The Modern Principles of Treatment in Bronchiectasis (Harveian lecture)

WEST KENT MEDICO CHIRURGICAL SOCIETY
FRIDAY—8 45 P M (Miller General Hospital, Greenwich, S E 10), Mr John Sandrey Genito urinary Emergencies

MEDICAL SOCIETY OF INDIVIDUAL PSYCHOLOGY
THURSDAY—8 30 P M (11, Chandos Street W 1), Dr R D Gillespie The Escape into Psychosis

BIOCHEMICAL SOCIETY
FRIDAY—2 15 P M (department of physiology and biochemistry, University College W C 1), short communications

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS Pall Mall East, S W 1
TUESDAY and THURSDAY—5 P M Dr H P Himsworth Diabetes Mellitus (Last Goulstonian lectures)

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields W C 2
MONDAY—5 P M Dr L W Proger : demonstration of new *specimens*
FRIDAY—5 P M Dr A J L Cave Anatomy of the Pharynx and Œsophagus

UNIVERSITY OF LONDON
TUESDAY WEDNESDAY, and THURSDAY—5 30 P M (Wellcome Research Institution Euston Road N W 1) Prof W Schulemann (Bonn) Chemotherapy
WEDNESDAY—7 30 P M (University College, W C 1), Dr Maitland Radford Slum clearance

UNIVERSITY OF BIRMINGHAM
THURSDAY—4 P M (Hospitals Centre), Dr Peyton Rous (New York) Present Aspects of the Cancer Problem (First William Withering lecture)

UNIVERSITY OF LIVERPOOL
THURSDAY—4 P M Prof Henning Waldenström (Stockholm) Slipping of the Upper Femoral Epiphysis (Lady Jones lecture)

UNIVERSITY OF GLASGOW
TUESDAY.—4.30 P M (Tennent Memorial Building Church Street) Prof A J Ballantyne The Eye in Disorders of the Blood and Blood forming Organs

UNIVERSITY COLLEGE HOSPITAL W C 1
TUESDAY—5 P M Sir Walter Langdon Brown Visceral Symptoms in Emotional States (Sackling lecture)

TAVISTOCK CLINIC Malet Place W C 1
MONDAY—4 30 P M Dr H Crichton Miller Self and the Family
THURSDAY—4 30 P M Dr T W Mitchell Character Formation

BRITISH POSTGRADUATE MEDICAL SCHOOL Ducane Road W 12
MONDAY—5 30 P M Colonel J M Weddell A General Survey of War Injuries and Medical Arrangements
TUESDAY.—4 30 P M Dr S Levy Simpson Diseases of Endocrine Glands 5 30 P M Colonel F M Cowell General Scheme for Dealing with Wounded
WEDNESDAY—Noon clinical and pathological conference (medical) 2 P M Dr T C Stamp Bacteriology of Streptococcal Infection 3 P M clinical and pathological conference (surgical) 4 30 P M Prof E C Dodds Hormones in Relation to Medicine and Pathology 5 30 P M Colonel F M Cowell Prevention and Treatment of Shock and Preparation of Cases for Transport
THURSDAY—2 15 P M Dr Duncan White radiological conference 3 30 P M Mr Leonard Phillips Radiation Therapy in Gynæcology—Benign Conditions 5 30 P M , Dr Janet Vaughan Blood transfusion
FRIDAY—2 P M clinical and pathological conference (obstetrics and gynæcology) 2 30 P M Mr Stanford Cade Radium 3 30 P M Mr C H Frankau Common Infections of Wounds
Daily 10 A M to 4 P M medical clinics surgical clinics and operations obstetrical and gynæcological clinics and operations

NATIONAL HOSPITAL Queen Square W C 1
MONDAY—3 30 P M , Dr D Denny Brown Chorea and Choreo athetosis
TUESDAY—3 30 P M Dr J St C Elkington Forms of Progressive Muscular Atrophy (2)
WEDNESDAY—3 30 P M , Dr F M R Walshe clinical demonstration
THURSDAY.—Dr Gordon Holmes, F R.S Cerebellar Degenerations
FRIDAY—Dr E A Carmichael Subacute Combined Degeneration
Outpatient clinic daily at 2 P M

ST GEORGE'S HOSPITAL S W 1
THURSDAY—5 P M Dr Mildred Creak psychiatric demonstration

HOSPITAL FOR SICK CHILDREN, Great Ormond Street W C 1
THURSDAY—2 P.M , Dr Wilfrid Sheldon Causes of Infantile Marasmus 3 P M , Mr J H Doggart Cause and Treatment of Cataract in Childhood
Outpatient clinics daily at 10 A M and ward visits at 2 P.M

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL Gray's Inn Road W C 1
FRIDAY—4 P M , Mr N Asherson Affections of the Lingual Tonsil

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL, N W 3
WEDNESDAY—4 P M Mr Clifford Morson Prostatic Obstruction—Cause and Effect

ST JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE, Ranelagh Road, S W 1
FRIDAY—3 30 P M , Dr A P Cawadias Diet in the Rheumatic Diseases

FELLOWSHIP OF MEDICINE AND POSTGRADUATE MEDICAL ASSOCIATION, 1, Wimpole Street W 1
MONDAY to SATURDAY—ROYAL WATERLOO HOSPITAL, Waterloo Road, S E 1 all-day refresher course in medicine, surgery, and gynæcology—ST MARY'S HOSPITAL, Paddington W 2 Tues and Thurs , 8 P M , clinical and pathological M R C P course—BROMPTON HOSPITAL S W 3 M R C.P course in chest diseases (5 15 P M twice weekly)—MEDICAL SOCIETY OF LONDON, 11, Chandos Street W 1, Mon , Wed , Fri 6 15 P M., primary F R C S physiology course—BRITISH LEGION HEADQUARTERS 26 Eccleston Square, S W 1 Thurs , 8 30 P M , lecture on clinical and pathological features of bronchiectasis.—*ROYAL CHEST HOSPITAL, City Road, E C 1* Mon , Wed and Fri 8 P M , M R C P course in heart and lung diseases (Open to non members)—ST MARK'S HOSPITAL, City Road E C 1 all day course in proctology

SOUTH WEST LONDON POST GRADUATE ASSOCIATION
WEDNESDAY—3 30 P M clinical meeting at Bolingbroke Hospital

MANCHESTER ROYAL INFIRMARY
FRIDAY—4 15 P M , Mr F G Wrigley ear, nose, and throat demonstration

LEEDS GENERAL INFIRMARY
TUESDAY—3 30 P M Prof C W Vining The Interpretation of Common Symptoms during the Early Years of Life

GLASGOW POST GRADUATE MEDICAL ASSOCIATION
WEDNESDAY—4 15 P M (Victoria Infirmary), Mr Norman Davidson surgical cases

Vacancies

For further information refer to the advertisement columns

Albert Dock Hosp Alnwick Road, E 16—Second res M O , at rate of £110
Altrincham St Anne's Hosp—Res surg O , at rate of £200
Argyll and Bute District Mental Hosp—Asst M O , £100
Bath Royal United Hosp—H S at rate of £150
Birmingham Dudley Road Hosp—Jun. M O , at rate of £200
Brighton Royal Sussex County Hosp—Mayo fellowship in anæsthetics, £300
British Postgraduate Medical School, Ducane Road, W 12.—Jun asst for dept of pathology, £300 Also two H S 's, each at rate of £100
Cambridge Addenbrooke's Hosp—Res. anæsthetist and emergency officer at rate of £130
Canterbury Kent and Canterbury Hosp—H.S , at rate of £125
Central London Throat, Nose and Ear Hosp , Gray's Inn Road, W C 1.—Hon assts in outpatient dept
Chesterfield and North Derbyshire Royal Hosp—Hon cons surgeon and director of the ear, nose and throat dept
Chichester Royal West Sussex Hosp—Jun H.S , £125
Colonial Medical Service—Medical Officers
Cornwall County Council Education Dept—School medical inspector £600
Derby, Bretby Hall Orthopædic Hosp—Jun res asst M O £350
Devonport Prince of Wales's Hosp—Sen. and Jun H.S , at rate of £130 and £120 respectively
Dudley Guest Hosp—H S £150
East Sussex County Council—M O and public vaccinator &c , £100 and fees
Eastbourne County Borough—Deputy M O H and deputy school M O , £600
Exeter City and County—Asst M O H , £500
Guildford Royal Surrey County Hosp—Two H.S's to spec depts , each at rate of £150

Hampstead General Hosp, Haverstock Hill, N.W 3—Cas M O for outpatient dept, at rate of £100

Holborn Metropolitan Borough, W C 1.—Temp M O for maternity and child welfare centre, £1 11*s* 6*d* per session

Hosp for Sick Children, Great Ormond Street, W C 1—Two H.P 's and two H S 's, each at rate of £50 Also hon associate neurological surgeon

Hostel of St Luke, 14, Fitzroy Square, W 1—Res M O, at rate of £200

Hounslow Hosp, Staines Road—H P and cas O, at rate of £100

Huddersfield County Borough—Asst school M O, £500

Hull, Beverley Road Institution—Asst M.O, £350

Ilford, King George Hosp—Res surg O, £250 Also res anæsthetist, at rate of £150.

Ilkley, Scalebor Park Mental Hosp, Burley-in Wharfedale—Med supt, £1000–£1250.

Ipswich, East Suffolk and Ipswich Hosp.—Cas O Also H S to ear, nose, and throat dept, &c, each £141.

Ipswich Borough General Hosp—Med supt, £900

Iraq Government—Ear, nose and throat specialist, Iraq Dinars 150 per mensem

Isleworth, West Middlesex County Hosp, Twickenham Road—Cas M O, at rate of £350.

Leeds University—Tutor in obstetrics and gynæcology, £500

London County Council.—Asst dist M O, £150.

London Hosp, E 1.—Surg first asst and registrar, £300 Surgical outpatient first asst, £150 Sen clin asst to obstet and gyn outpatient dept, at rate of £200 Also res anæsthetist, £150

London University—Chair of pathology of mental disease at Maudsley hosp, £1250 Also readership in biology at St Bartholomew's Hosp Medical College, £700

Manchester, Crumpsall Hosp—Res asst M O, at rate of £200

Manchester, Saint Mary's Hosps—H S 's to special depts, each at rate of £50

Melton and Belvoir Rural District Council, &c—M O H, £800.

National Temperance Hosp, Hampstead Road, N W 1—Cas O, at rate of £120.

Nelson Hosp, Merton, S W 20—Res H S, at rate of £150

Northampton General Hosp—H S to ear, nose, and throat depts., at rate of £150

Norwich, Norfolk and Norwich Hosp—Hon physician

Nottingham Hosp for Women—H S, at rate of £150

Oxford County and City Mental Hosp—First asst M O, £500

Otago University, New Zealand—Lady King Scholarship, £600

Oxford University—First asst in dept of anæsthetics, £600

Peterborough City Education Committee—Temp part-time school oculist, 2½ guineas per session

Poplar Hosp, East India Dock Road, E 14—Hon radiologist

Prince of Wales's General Hosp, N 15—Hon asst. radiologist

Princess Beatrice Hosp, Earl's Court, S W 5—Cas O and obstet H S, at rate of £110

Princess Elizabeth of York Hosp for Children, Shadwell, E 1—H P, at rate of £125

Princess Louise Kensington Hosp for Children, St Quintin Avenue, W 10—H P and H S, each at rate of £120

Queen Charlotte's Maternity Hosp, Marylebone Road, N W.1—Res M O for isolation hosp, at rate of £200.

Queen's Hosp for Children, Hackney Road, E—H P, at rate of £100

Rainhill, Lancs, County Mental Hosp—Asst M O, £550.

Reading Royal Berkshire Hosp—H P, at rate of £150

Richmond Borough, Surrey—Asst M O H, £600

Richmond Royal Hosp, Surrey—Res M O, £200.

Rotherham Hosp—H P, £180

Royal Air Force.—Commissions

Royal Cancer Hosp, Fulham Road, S W 3—Asst physician. Radium therapeutist, £650 Asst radiologist for therapeutic dept and asst. radiologist to diagnostic dept, each £350 Also surg reg and med reg, each £150.

Royal Chest Hosp, City Road, E C 1—H P, at rate of £100

Royal College of Surgeons of England—Annual examinerships

Royal Northern Hosp, Holloway, N 7—H S, at rate of £70

Royal Society of Medicine, 1, Wimpole Street, W 1—William Gibson Research Scholarship, £292.

St John's Hosp, Lewisham, S E 13—Res surg O, £200 Also H P, at rate of £100

St Mary's Hosp, W 2—Surg Reg

St Peter's Hosp for Stone, &c, Henrietta Street, Covent Garden, W C 2—H S, at rate of £75

Scarborough Hosp—Two H S 's and H P, each at rate of £150

Sheffield, Royal Hosp—Clin asst, £300

Smethwick County Borough—Sen asst M O H, and asst school M O, £650

Southampton, Royal South Hants and Southampton Hosp—Res anæsthetist Also H S to general, surgical, and ear, nose, and throat wards, each at rate of £150

Stockport Infirmary—H S, £150

Sunderland Royal Infirmary—Locum res surg O, at rate of £250. Also H S to fracture and orthopædic dept, £225

Taunton and Somerset Hosp—H P, at rate of £125

Tilbury Hosp, Essex—Med supt, £200 Also H S, at rate of £140

Torquay, Torbay Hosp—Hon physician Also H.P £175

University College Hosp Medical School, W C 1—Asst in dept of bacteriology, £250

Warrington Infirmary and Dispensary—Third resident, at rate of £150

West End Hosp for Nervous Diseases, 73, Welbeck Street, W 1—In-patient registrar, £50

West London Hosp, Hammersmith, W 6—H.P, H S, Also res anæsthetist each at rate of £100

Western Australia Government Mental Hosps Dept—Senior M O, £735 Also two jun M O 's, each £666

Western Ophthalmic Hosp, Marylebone Road, N W 1—Res sen and jun H S 's, at rate of £150 and £100 respectively

Wigan, Royal Albert Edward Infirmary and Dispensary—Two H S 's, each at rate of £150

Windsor, King Edward VII Hosp—H S, £120

Wolverhampton, New Cross Hosp—Res asst M O, £200

Wrexham and East Denbighshire War Memorial Hosp—Two res H S.'s Also res H S to special depts, each at rate of £150

The Chief Inspector of Factories announces vacancies for Examining Factory Surgeons at Garforth (York, W R.), and Littleborough (Lancaster)

Appointments

BALCH, H W, M B Aberd, junior assistant medical officer at King Edward VII Memorial Sanatorium, Hertford Hill, nr Warwick

BUTLER, E O B, M B Lond, F R C S, junior surgeon to the Royal Surgical Aid Society

CRAWFORD, J W, M D. Glasg, D P H, deputy and assistant medical officer of health for Stepney

CROSSLEY, DOROTHY L, M B, woman assistant school medical officer for Middlesbrough

FRASER, PHYLLIS M FARNCOMBE, M B Lond, D.M R, hon. radiologist in charge of the X-ray and electrotherapeutical department, Princess Elizabeth of York Hospital for Children, London

GUNN, A L, M D Wales, F R C S E, M R C O G, medical officer to the St Pancras gynæcological clinic

KIERNANDER, BASIL, M R.C.P, D M R E, assistant physician to the department of physical medicine, Radcliffe Infirmary, Oxford

*KNOWLES, E W, Ch M Lpool, resident assistant medical officer at Crumpsall Hospital, Manchester

LAWLER, N A, M B Sydney, D M R E, D M R, assistant to the radiological department of the Gloucester Royal Infirmary.

MATHEWS, J G, L R C P I, surgical registrar at the Jervis Street Hospital, Dublin

MURRAY, D. P, L R C P I, surgical registrar at the Jervis Street Hospital, Dublin

PAPPWORTH, M H, M D Lpool, M R C P, resident assistant medical officer at Cumberland House Hospital, Mitcham

ROBERTS, R F, M D, assistant school medical officer for Kent

WADGE, JOAN, M B Lond, F R C S, registrar at the Royal Ear Hospital, University College Hospital, London

WILKES, NELLIE, M B Birm, M R C O G, assistant medical officer of health (maternity and child welfare) for Halifax

WILSON, A HUTTON, M D St And, assistant hon physician to the Devonshire Royal Hospital, Buxton

Royal Sheffield Infirmary and Hospital—The following appointments are announced —

PRICE, A K, M B Lond, F R C S, surgical registrar,
JONES, C D P, M B Lond, resident surgical officer,
NAYLOR, ARTHUR, M B Sheff, senior casualty officer, and
ANDERSON, JOHN, M B, resident anæsthetist

Examining Surgeons under the Factories Act, 1937: Dr A. W CUTHBERT (Cardenden District, Fife), Dr J M HOLMES (Stafford District, Stafford)

* Subject to confirmation

Births, Marriages and Deaths

BIRTHS

BALFOUR—On Feb 23, at West Worthing, the wife of Dr Ivor Balfour—a son

CHRISTIE—On Feb 26, at Devonshire Place, W 1, the wife of Prof Ronald V Christie—a daughter

MORLEY—On Feb 21, at Yeovil, the wife of Dr John E Morley—a son

NEWMAN—On Feb 24, the wife of Surgeon Commander G G Newman, R N, of H M Dockyard, Portsmouth—a daughter

PURDY—On Feb 22, at Oakham, the wife of Mr Gordon Purdy, F R C S E—a son

SINGER—On Feb 23, at Devonshire Place, W 1, the wife of Major E O A Singer, R A M.C—a son

DEATHS

BEEVOR—On Feb 24, in a nursing-home, Sir Hugh Reeve Beevo Bart, M D, F R C P, of Hargham, Norfolk, aged

BOYCE—On Feb 27, at Bournemouth, Charles Boyce, M D Edin, of Canford Cliffs, Dorset, aged 85

CLEMOW—On Feb 25, at Ealing, Frank Gerard Clemow, C M G, M D Edin, aged 76

COOKE—On Feb 26, William Henry Cooke, M D Br F R C S E, of Bath

DODDS—On Feb 10, at Capetown, Horace Bonar Dodds, M D Edin

HOBSON—On Feb 22, at Hastings, Lewis John Ho M D Lond, F R C S E, of Harrogate

MACKENZIE—On Feb 24, at Cheadle, Staffs, Ernest Macke M D Glasg, aged 76

MITCHELL—On Feb 25, at Farnborough, Hants, Lieut.-Co Lionel Arthur Mitchell, M B Dubl, R.A.M C (retd)

MURISON—On Feb 27, at Clifton Court, N W 8, Alexar Murison, M B Aberd, formerly of Cairo Egypt

SKINNER—On Feb 28, in London, Ernest William Skinne O B E, M D Edin, Lt-Col R.A M C, of Rye, Susse

STANSFIELD—On Feb 19, at 9, av. Fremiet, Paris, Lieut-Col T E Knowles Stansfield, C B E, M B Edin, late R A M C proprietor of the Castello Devachan, San Remo

WHITEHEAD—On Feb 21, at the East Dulwich Hosp Charles Ernest Whitehead, M B Camb, M R C S

N B—A fee of 7s 6d is charged for the insertion of Notice Births, Marriages and Deaths.

NOTES, COMMENTS, AND ABSTRACTS

DELINQUENCY AND PSYCHOLOGY

In a paper read at a meeting of the Medical Society of Individual Psychology on Feb 9 Mr. Claude Mullins said that our methods of trial offended the principles of psychology in six ways (1) by keeping the suspect as long as possible in ignorance of the fact that he was suspected, (2) by telling him, as soon as the matter was mentioned to him, that he need not make any statement, with the obvious innuendo that it might be worse for him if he talked, (3) by accepting as a general principle that contradictory statements were evidence of lying, (4) by ascertaining the facts by means of a sort of sporting contest in which both sides admitted that a wrong decision of "not guilty" did not matter, (5) by holding the proceedings in a court-room constructed so abnormally as to instil fear, and (6) by allowing the public to be present and the press to publish all names and addresses without being compelled to publish a fair account of the case

Reformer though he was, he would not abandon these principles before psychologists could suggest a better alternative Psychologists had not yet tackled the problem of procedure in court If they were to do so, they would doubtless meet with a frigid reception from most lawyers at first, for as a profession lawyers were satisfied almost to the point of smugness So far psychology had only concerned itself with procedure after sentence He had often used the help of psychotherapy to remould offenders Here progress had been made, although there could be no real agreement between Freudian psychologists and practical lawyers, who had to accept free will and punishment and were often surprised at some of the claims made by psychologists He pleaded for severe moderation in the expression of psychological theories, if they hoped to influence the benches The time might come when their occupants would be compelled to have a training in psychology There were five main difficulties (1) the bench was concerned rather with the protection of society than with what was best for the delinquent, (2) many delinquents were of subnormal intelligence and unamenable to psychotherapy, (3) public opinion was imbued with the spirit of retaliation; (4) many delinquents did not wish to be cured and refused to coöperate with psychologists, and (5) psychotherapy often necessitated very prolonged treatment In spite of these difficulties Mr Mullins believed that, though progress would be slow, one day psychology would revolutionise our criminal law and procedures Progress would probably be more rapid in the juvenile courts, where the value of child guidance was increasingly being realised Psychological lawyers would replace criminal lawyers, and formal trials would cease to exist, even as hysteria was no longer the subject of a trial for witchcraft

THE PHYSIOLOGY OF VISION

Most of the gross phenomena of vision were elucidated in the last century, and there is little room in the modern physiological textbook for more than a few elementary observations on the subject Even the fuller accounts give small indication of the trends of modern research, and this is a pardonable fault, for these have few applications for the average medical student It is a pity, however, to lose sight entirely of progress even in a specialised field, and those who read the review by Wright and Granit [1] will find both the opportunity and incentive to bring themselves up to date The contents are too technical to be easily summarised, but they cover recent advances in the photochemistry of substances found in the retina and in the study of the electrical phenomena accompanying vision The discovery that light sets up an inhibitory state in addition to excitation, so that its removal is followed by impulses in the optic nerve, is particularly interesting, for it must give to visual perception in some respects the adaptability of a reflex action The electrical response also reveals differences between light- and dark-adapted retinæ which are not apparent in other ways The more subjective phenomena of vision, such as appreciation of luminosity and colour, visual activity, light- and dark-adaptation and so forth, are also discussed and their possible relationship to physically measured values indicated In a final more speculative section the authors point out what they regard as the problems of the future

TULARÆMIA IN THE UNITED STATES

According to Dr Byron J Olson (*Bull Off int Hyg publ.* 1938, 30, 2808) the total number of cases of human tularæmia in the United States from 1920, when the disease was first described in man, to 1937 was 8037, with 300 deaths—a fatality-rate of about 5 per cent The disease has been found in all the states except Vermont and Connecticut The principal sources of infection are the wild rabbit and the wild hare, which are the direct cause in more than 90 per cent Other sources are the wood-tick, dog-tick, horse fly, opossum, quail, sheep, musk-rat, marmot, cat, red fox, squirrel, grouse, coyote, stag, wild boar, bull snake and skunk The seasonal incidence of the disease is due to changes in the opportunities for infection There has so far been no evidence of the transfer of the disease from man to man

A PSYCHOLOGICAL VIEW OF EDUCATION

The headmistresses of the twenty-five schools controlled by the Girls' Public Day Schools Trust, finding that they had not sufficient time to master modern theories of education and psychology, suggested a few years ago that the council of the trust should engage an experienced woman psychologist to visit each school and study the problems she encountered from her specialised standpoint Her duty would be to observe the sequence of work at different stages, paying particular attention to difficult classes, variation of methods, the effect of physical conditions such as ventilation and lighting, the length of lesson periods and the arrangement of the time table, and to conduct vocational tests, lecture to the staff and parents on child psychology, and advise individual members of the staff on their own mental health Her function would be, in fact, to infiltrate each school with modern psychological ideas and practice and to carry out research A modified plan was drawn up and work began in January, 1935 The results have now been published[1] as one of the series "Contributions to Modern Education," edited by Mrs Susan Isaacs, D Sc The practical implications include establishing contacts between school and parent, helping girls to deal with their emotional problems, allowing for individual differences in ability, using intelligence tests in the entrance examinations, assisting discipline, reducing fatigue for the staff and promoting educational and vocational guidance This study is merely a scratch on the surface of an immense field and brings together only the bare outlines of its problems These outlines, however, will be of great value to all teachers of girls, and will inevitably stimulate interest in, and suggest an approach to, the problems of everyday work in school

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[1] On the Correlation of some Sensory and Physiological Phenomena of Vision By W D Wright, Imperial College of Science London and Ragnar Granit, Institute of Physiology, University of Helsingfors *Brit J Ophthal* 1938, Monograph suppl IX

[1] The Human Problem in Schools By Marion Milner, B.Sc. London Methuen and Co 1938 Pp 220 8s *6d*

OSTEOMALACIA WITH CŒLIAC DISEASE

AT a meeting of the Devon and Exeter Medico-Chirurgical Society on Feb. 23 Dr. C J. Fuller showed and described a case of osteomalacia.

The patient, a girl of 11, had been treated 4½ years ago at Alton Sanatorium, but had afterwards been discharged to a poor home There was a history of recent muscular spasms and diarrhœa, and the right ankle was swollen for a week before her admission to the Royal Devon and Exeter Hospital When first seen by Dr Fuller she was much under-nourished, weighing only 1 st 12 lb and she appeared to be only about 5 years old The abdomen was large and tumid Radiograms revealed bony changes typical of osteomalacia and also fractures of the left wrist and ankle. A blood-count showed severe microcytic anæmia and the serum-calcium was only 7 8 mg. per 100 c cm The stools showed no excess of fat, probably because she had been inadequately fed at home, and the Wassermann reaction was negative

The essential disorder in this case, said Dr. Fuller, was inability to absorb calcium. Treatment with a diet rich in vitamin but poor in fat had much improved the girl's condition, though she was still small for her age.

THE "BIOMOTOR"

Messrs. Richard Ostermann Ltd. (High Holborn, W.C.1) have called our attention to a remark, made by Sir Henry Gauvain at a recent meeting of the Medical Society of London (see *Lancet*, Jan 28, p. 212), to the effect that the Biomotor exerts negative pressure. Actually, we are told, the apparatus is designed for the application of both negative and positive pressure, and it is this double action which is the basis of the claim made for efficiency as an agent of artificial respiration. The biomotor is one of the "breathing machines" mentioned by Prof. L. J. Witts in an address to the Manchester Medical Society briefly reported on p. 453 of our last issue Dr. Rudolf Eisenmenger in a monograph issued five years ago (Munich: F. and M. Lautenschläger) suggests uses for the apparatus in respiratory and circulatory disorders as well as in a host of other disorders such as constipation, obesity, and cirrhosis of the liver. The apparatus weighs about 65 lb or 95 lb. with its trolley; its lightness and portability facilitate its application in emergency.

TRANSDENTAL DISLOCATION OF THE ATLAS

FRACTURE of the dens of the axis with dislocation of the atlas is an accident which rarely comes into the doctor's hands for treatment, because it usually leads to instant death. In a case reported by G. W. Tromp, however, the patient not only survived but remained free from any symptoms of damage to the spinal cord (*Ned Tijdschr Geneesk* 1939, 83, 586)

A woman of 23 was injured in a motor accident, striking her forehead forcibly against the side of the car. She was taken to a neighbouring clinic in another car and the doctor there found that though she was holding her head inclined sideways and forward it could be moved actively in all directions except backward No nervous signs or symptoms were present. A radiogram was taken, but the fracture of the dens was not noticed, and there was at that time no sign of displacement Subsequent examination of the plate, however, clearly showed the presence of the fracture. The doctor, diagnosing a subluxation of the cervical spine, anæsthetised the patient, pulled on the head forcibly and put the neck only in plaster. After this manipulation the patient could not move her head in any direction, and complained of severe pain in the neck and back of the head and tingling in the left thumb, index, and middle fingers Another radiogram taken after she had come under Tromp's care showed the fracture of the dens with backward displacement of the fragment and of the whole of the atlas to a distance equal to half the breadth of the dens

To prevent further displacement and sudden death the head and neck were immediately fixed in a plaster case including the thorax, no attempt at reduction being made But the necessary handling produced further displacement, a radiogram showing that the fragment and the atlas were now displaced backwards a distance equal to the whole breadth of the dens, and it was decided in spite of the danger to attempt replacement The plaster case was cut away from the head only, so that traction bands could be passed beneath the occiput and chin, and steady traction then reduced the dislocation, as was proved by another radiogram. The traction was maintained for 20 minutes, and the head was meanwhile re-encased in plaster of paris The patient was kept recumbent in the plaster case for 4 weeks, when fresh plaster was applied After 2 months the patient was allowed up in a surgical jacket with head-extension

She continued to make good progress, and at the time of publication, 7½ months after the accident, appears to be quite well.

STATISTICAL BIBLIOGRAPHY

THE Rutgers University Press have published a reprint[1] from their "Mental Measurements Yearbook for 1938" which aims at providing a full list of the recent books in English dealing with statistical methods and with methods of research, mainly in the social sciences. To help the seeker after truth to assess the value of each book the editor has included extracts from the reviews it received in the scientific journals—a process he describes as "excerpting evaluative statements." He proposes to supplement the list every year if it proves of value, and invites comment. In response to that invitation it may be suggested that the "full bibliographic information" given should include English authors under the names that appear on their title pages It is a little strange, for instance, that the world-familiar name of G. Udny Yule should be converted into George U Yule. The initials of authors and the titles of their publications are not impeccable, that the list must be used with care.

THE MARMITE FOOD EXTRACT Co have issued new booklet with full references to much recent wo confirming the value of their product as a source of t vitamin-B complex and as an anti-anæmic age Attention is drawn to a tribute to the value of marm in the treatment of beriberi and of multiple dietet deficiencies among refugees in China, and to i inclusion among the selected foodstuffs given wi good results to groups of necessitous expectant mothe in the depressed areas in this country. The hæm poietic activity of marmite was originally ascrib to a high content of extrinsic factor, but rece experiments have suggested the presence of anoth hæmopoietic factor in this substance, which is no established as a curative agent in certain types macrocytic anæmia

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[1] Research and Statistical Methodology Books and Revie 1933–38 Edited by Oscar Krisen Buros New Brunswic Rutgers University Press 1938 Pp 100. $1 25

MAYO FELLOWSHIP IN ANÆSTHETICS.—Particula of this fellowship, which has been founded by a Sus resident and is tenable at the Royal Sussex Cou Hospital, Brighton, will be found in our advertis ment columns. The new fellow will be in charge of th anæsthetic department of the hospital under the h anæsthetists, but he will also be expected to undertak research, for which special facilities will be given him the hospital and in the Stephen Ralli laboratory. Near 10,000 anæsthetics have been given in the operat theatres of the hospital in the past three years, there a three hon. anæsthetists and two assistants.

ADDRESSES AND ORIGINAL ARTICLES

SURGICAL REVASCULARISATION OF THE HEART

THE EXPERIMENTAL BASIS

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(From the Buckston Browne Research Farm and the Bernhard Baron Laboratories of the Royal College of Surgeons of England)

UNLESS the organism possessed some means of natural compensation for cardiac ischæmia, occlusion of the larger coronary vessels would be fatal The immediate mortality of coronary thrombosis is very high—in Hochrein's (1937) series of 297 cases 108 patients died in the first eight days and 48 more in the course of the first month—but many patients return to an active life, sometimes even for years, before suffering their second attack

Exact investigation of all the possible mechanisms of defence against cardiac ischæmia is difficult, but it is at least clear that so long as the heart remains free in the pericardial sac local compensation can only be effected by such intrinsic mechanisms as intercoronary anastomoses, anastomoses between the coronary tree and the vasa vasorum of the great vessels, and possibly by means of the thebesian circulation Only when the heart adheres to the parietal pericardium does any extrinsic reinforcement of the coronary tree become possible.

For many years the surgical treatment of cardiac ischæmia was indirect and confined to various types of neurectomy carried out for the relief of anginal pain, but recently direct operations on the heart have been carried out, and in the attempt to supplement the cardiac blood supply vascular grafts—muscle (Beck 1935), omentum (O'Shaughnessy 1936), lung (Lezius 1937)—have been applied

The pathological basis of these operations and their clinical application for the relief of coronary disease in man have been considered in previous papers Here we intend to summarise the experimental evidence—there is more evidence than is generally realised—in favour of surgical revascularisation of the heart and to record some further results which have accumulated during the three years that have elapsed since our last paper dealing with experiments

THE CORONARY COLLATERAL CIRCULATION

The existence of extracardiac anastomoses of the coronary arteries demonstrated by various early workers was reinvestigated in detail by Robertson (1930) and by Hudson, Moritz, and Wearn (1932) The latter defined clearly the origin and extent of this widespread and rich potential extracardiac coronary collateral circulation and drew attention to its probable significance in compensating for coronary sclerosis Although the effective participation of these collaterals in the event of a sudden or rapid coronary occlusion is doubtful it seems probable that they may at any rate operate to diminish and limit the extent of myocardial damage, more especially when the cardiac ischæmia is of gradual onset Many cases have been recorded bearing on this point

Gross (1921) described a heart in which the vessels of the peri-aortic and epicardial fat-pads prevented infarction from following subtotal occlusion of the circumflex branch of the right coronary artery Campbell (1929) examined a heart in which a thrombosed area in one coronary artery was bridged by arterial telæ adiposæ so effectively that infarction did not occur in the area involved

Details are given by Robertson of two cases illustrating the important part that may be played by these widespread anastomotic channels in preventing the usual myocardial damage produced by coronary occlusion

Von Redwitz (1909) and Crooke (1892) reported cases of bilateral occlusion of the coronary orifices and observed a network of dilated vessels from the adventitia of aorta and pulmonary artery to the coronary vessels beyond the occluded segment

Although it may only rarely happen that this type of collateral circulation can provide a vascular supply sufficient to compensate completely for the coronary occlusion, it may, however, be a significant factor in some cases in limiting the degree and extent of the ischæmia

REVASCULARISATION BY CARDIOPERICARDIAL ADHESIONS

Besides these natural anastomotic channels a further possibility for the revascularisation of the heart rests in the formation of cardiopericardial adhesions, establishing connexions between the coronary vessels and the pericardial and mediastinal vessels

Thorel (1903) described the case of a patient who showed no signs of cardiac disease in life, but in whom long standing occlusion of both coronary arteries was found post mortem Intrapericardial adhesions apparently provided in life an adequate blood-supply to the heart muscle

Hudson, Moritz, and Wearn (1932) describe four cases with partial or complete pericardial obliteration by adhesions Injected through the coronary arteries these showed in all four cases a specially rich injection of the pericardium. On microscopical examination the adhesions were found to contain injected vessels extending from the heart to the parietal pericardium

Robertson (1935) carried out experiments on the re-establishment of cardiac circulation during progressive coronary occlusion by vessels carried in pericardial adhesions He succeeded in obtaining continued functioning of the heart after both coronary arteries had been ligatured, the requirements of the myocardium being supplied entirely by vessels in the adhesions Section of these adhesions led to the death of the animal

Beck (1935), during an operation, divided a band *of adhesions attached to the base of the left ventricle* and observed that both sides bled briskly.

We have observed at operation on the human heart a leash of highly vascular adhesions passing from the pericardium to the margins of a circular infarcted area on the sternocostal surface of the left ventricle Other examples of natural compensation for cardiac ischæmia by the formation of pericardial adhesions cited in the literature have been quoted in our previous papers Beck and Tichy (1935) *carried out a series of* experiments in which vascular adhesions were produced between the heart and the pericardium and pericardial fat after removal of the epicardium and the lining layer of the parietal pericardium They demonstrated that almost complete occlusion of the right and left coronary arteries was compatible with life if the heart had been provided with a collateral blood-supply. Dye was shown to have penetrated the myocardium when injected through the collateral bed. They emphasised the importance of a pressure differential as a stimulus for the formation of collateral channels Anastomoses between the cardiac and extracardiac circulations were demonstrable as early as two weeks after operation.

EXPERIMENTAL AUGMENTATION OF THE BLOOD-SUPPLY

The first direct operation for cardiac ischæmia was done by Leriche and Fontaine (1933), who, in a dog, excised part of an infarct following a coronary ligature and repaired the defect with a free graft of pectoral muscle. After this and as a result of the pathological studies of the development of a natural collateral circulation outlined in the previous section there appeared a series of papers on the experimental production of an additional blood-supply to the heart by grafting

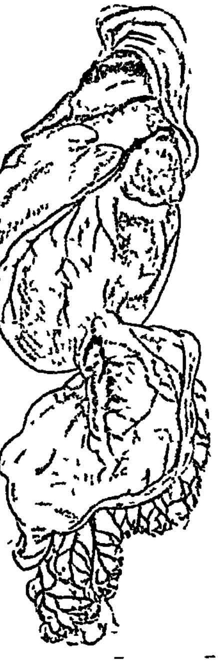


FIG. 1—Injected cardiopericardial adhesions produced with aleuronat in a cat

Beck and his co-workers (1936) carried out an extensive experimental study of the relief of cardiac ischæmia and provided an accessory blood-supply to the myocardium by grafting. The first series of experiments have already been mentioned in the previous section In subsequent experiments pedicle grafts of muscle and omentum were used. They found that anastomoses developed readily between the blood-vessels of skeletal muscle and of the myocardium, provided the blood-supply of the heart had been reduced. In the absence of partial occlusion of the coronary vessels the anastomoses though present are not so well developed. They concluded "that the presence of a collateral vascular bed definitely protected the heart from the ravages of sudden occlusion of a major coronary artery" The graft acts by providing an accessory blood-supply and by affording channels of communication between branches of one coronary artery and branches of the other occluded coronary artery

With this experimental work as a background Beck performed the first operation on the human for relief of cardiac ischæmia by attaching a pedicle graft of the pectoralis major muscle to the myocardium

Reinhof (1935) stated in a discussion that after the application of a pedicled omental graft to the heart of the dog ligature of the left descending coronary artery failed to produce an infarct. We have not been able to find further details of his experiments

Anrep (1936) mentions an autopsy on an Egyptian accustomed to heavy manual labour in spite of coronary disease of considerable duration. The effects of occlusion of the left coronary artery and a narrowing of the right coronary artery had apparently been compensated for by an adhesive pericarditis with the development of pericardial collateral vessels. Anrep experimented on dogs, and produced effective revascularisation by using the triangularis sterni muscle as a bridge between the mediastinal vessels and the heart. This revascularisation was more effective if some of the coronary vessels had previously been ligatured. In some of Anrep's experiments his grafted animals survived with a normal exercise-tolerance after successive ligature of both coronary arteries

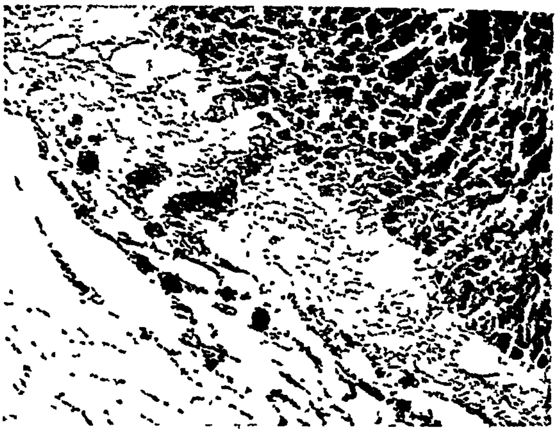


FIG 2—Section of cardiopericardial adhesions produced with aleuronat in a man

Lezius (1937 and 1938) studied carefully and in detail the development of a coronary collateral circulation after grafting the lung to the surface of the heart. In one group of sixteen successful experiments the lung was sutured to the surface of the heart and a 30 per cent. solution of flavine was applied as an additional stimulant to the formation of vascular adhesions After this operation of cardiopneumopexy the left coronary artery could be ligatured, and the animals later showed a normal exercise-tolerance. At autopsy the surprising degree of revascularisation attained was demonstrated by injection of Thorotrast into the pulmonary artery. The complete filling of the coronary tree could be shown radiologically. Microscopical preparations showed the absence of any infarcted area in the heart and demonstrated the presence of large new vessels passing from the graft into the myocardium.

Lezius emphasised the importance of cardiac ischæmia as a stimulant to the development of the collateral circulation. The vascular connexions between the pulmonary and coronary circulations is slight when the coronary vessels are not ligatured The development of functionally active anastomoses between these two organs follows rapidly on ligature of a main coronary vessel. The importance of the accessory supply after cardiopneumopexy was demonstrated by the fact that in an animal in which the

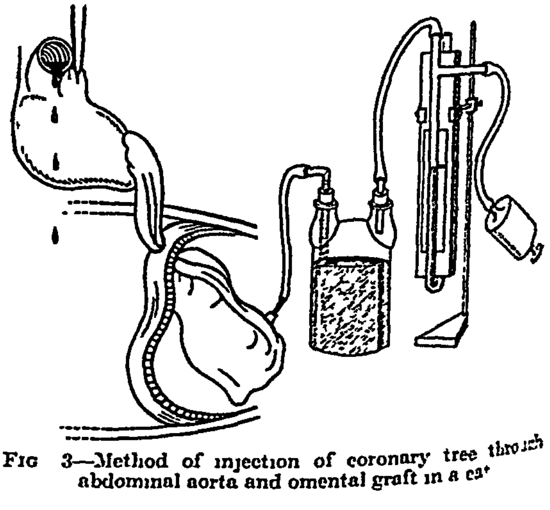


FIG 3—Method of injection of coronary tree through abdominal aorta and omental graft in a cat

left coronary artery had been ligated after grafting of the lung subsequent ligature of the bronchus of the grafted lobe killed the animal This he attributed to the absence of oxygenation in the atelectatic lobe Lezius further demonstrated that the supplemental blood-supply to the myocardium provided by grafting the lobe of the lung on to the heart was sufficient to enable ligature of both right and left coronary arteries to be tolerated

Grassi (1937) performed experiments on rabbits in which grafts of pectoral muscle and omentum were applied to the heart together with ligature of one or more coronary arteries He confirmed the formation of vascular connexions between muscle grafts and the heart and the absence of degenerative changes in the myocardium

In a series of publications O'Shaughnessy (1936) has reported a detailed experimental investigation of the methods of augmenting the blood supply to the heart He showed in the greyhound that an omental graft was compatible with the highest degree of physical exertion, and that vascular connexions developed rapidly between such a graft and the myocardium New vessels can be seen in microscopical preparations one week after grafting, and after three weeks complete injection of the coronary tree can be carried out from the arterial bed of the graft He used a pedicled omental graft brought up into the chest in the manner he devised for œsophageal resection (1933)

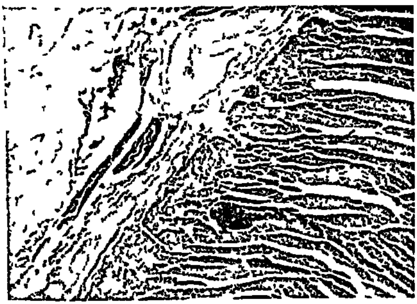


FIG 4—Section of myocardium showing filling of coronary vessels by injection through omental graft

In recent specimens a suspension of Indian ink was used as the injection mass, but, as the graft matured, vascular continuity could be demonstrated by heavier materials such as starch and gelatin In a greyhound killed eighteen months after cardio omentopexy the coronary tree could be completely filled by injection of a barium sulphate paste through the graft

In these experiments it was shown that the omentum would form vascular attachments when it was applied to normal myocardium, an area of acute ischæmia, or an area of chronic ischæmia It must also be emphasised that blood reaching the heart from the graft is not merely distributed locally but is also available throughout the heart in virtue of the connexions between the graft and branches of the right and left coronary arteries This additional supply from omental vessels was always supplemented by connexions which became established between the vessels of the omentum and the mediastinal vessels

The application of this experimental work to the problem of surgical revascularisation of the ischæmic heart in man by the operation of cardio omentopexy and other operative procedures elaborated on the bases of this experimental work has been attended by success in many apparently hopeless cases Patients operated on two and a half years ago are still active, but naturally a longer period of observation is needed for final assessment of the clinical value of this new operation

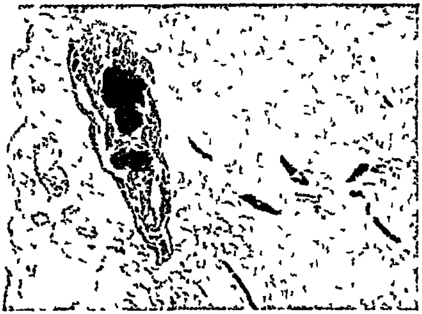


FIG 5—Section showing coronary artery filled by injection through omental graft on to aleuronat adhesion

Experiments

In the experiments described in this paper dogs and cats were used and all the operations were performed under full general anæsthesia

Ether was the anæsthetic medium, preceded in the operations on dogs by heavy doses of morphia—gr ¼ per kg of body-weight The heart was exposed by the left transpleural route, while full inflation of the lungs was maintained by oxygen given under positive pressure in a Tiegel-Henle anæsthetic apparatus The incision was in the fifth or sixth intercostal space, and the wound was closed by pericostal sutures, a single continuous suture for the muscles of the chest wall, and a series of interrupted sutures for the skin

In all the experiments an extracardiac collateral circulation has been established between vascular parietal structures and a normal myocardium This is of special importance because of recent claims that such vascular connexions are only likely to form in relation to a localised area of cardiac ischæmia

The experiments fall into four groups and in each group one or more typical experiments are detailed.

PRODUCTION OF ALEURONAT ADHESIONS

Aleuronat—Organised granules are found in the seed cells of most plants They are especially prominent in the cereals and have been termed aleurone granules Aleuronat is a preparation of aleurone and consists of a crystalloid component and a globoid component which contains minute traces of Ca, Mg and H_3PO_4 It was used by O'Shaughnessy in 1929 as an agent to produce pleural adhesions, but it had been used much earlier by Coenen in 1901 for a similar purpose Aleuronat does not occasion any general systemic disturbance for it is not absorbed into the circulation, it produces a more certain local reaction than iodine or similar irritants and has a less drastic effect on endothelium than have drugs of the flavine group We are indebted to Mr H Roberts chief technical assistant in the surgical unit of University College for the compounding of a suitable preparation which may be easily manipulated in a strong syringe. The composition of the paste is aleuronat 5 parts, starch 10 parts, glycerin 75 parts, and water 10 parts, and it is sterilised for use by autoclave.*

EXPERIMENT.—Cat. Pericardiotomy and insertion of a small quantity of aleuronat paste. Pericardium and parietal wound closed by suture. Uneventful convalescence.

The animal was killed six months later, and the heart together with the pericardium was removed. The fibrous pericardium was then incised at the base of the heart and turned downwards until its only attachment to the heart was by the aleuronat adhesions. An injection of a suspension of indian ink was made into the aorta towards the heart at a pressure of 120 mm Hg, and the entire specimen was then fixed in formalin. Fig 1 shows the vessels in the parietal pericardium filled with the injection mass and the delicate adhesions between the sac and the epicardium containing the vessels which provided a new connexion between the coronary and pericardial vessels.

We have also observed the supple and vascular nature of aleuronat adhesions in some of our operated patients even after the lapse of several years Fig 2 shows the vascularity of aleuronat adhesions in the human pericardium three months after the application of aleuronat. The adhesions associated with the now well-recognised syndrome of inflow stasis due to chronic constrictive pericarditis are tough, unyielding, and avascular.

These observations show that aleuronat produces a sufficient reaction of the epicardium to permit the incursion of new vessels without the previous destruction of the membrane.

FIXATION OF A GRAFT WITH ALEURONAT PASTE

EXPERIMENT.—Cat. Operation on March 19, 1937. The pericardium was opened in the usual way, and after incision of the diaphragm a pedicled omental graft was brought up into the chest The surface of the heart and the graft were smeared with a small quantity of aleuronat paste, and the graft was sutured to the cut edges of the pericardium No sutures were passed between the omentum and the heart.*

On April 1, 1938, the animal was killed All the attachments of the heart were cut across until the organ could be suspended on a hook with the graft on its sole remaining attachment (fig. 3) A suspension of indian ink was injected into the abdominal aorta at a pressure of 120 mm Hg, and the coronary tree was completely filled Fig. 4 shows the injection mass in the graft and in the coronary vessels

This experiment is of clinical importance because we found early in our operations on human beings that the insertion of a suture into a friable and degenerate myocardium was dangerous and sometimes fatal

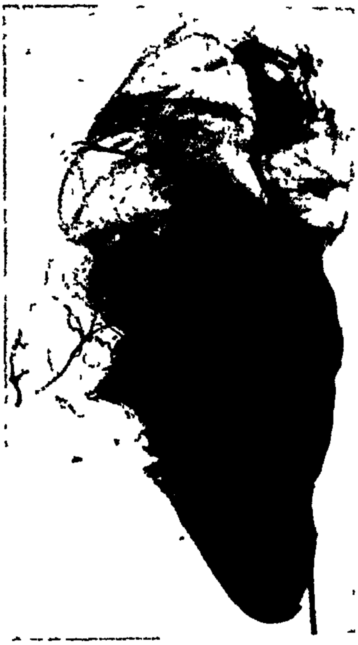


FIG. 7—Cardiopneumopexy (Lezius) Radiogram of heart and left lower lobe of lung of a dog showing filling of coronary vessels by injection of thorotrast into pulmonary artery Note cannula in pulmonary artery

GRAFTING ON TO ALEURONAT ADHESIONS

EXPERIMENT.—Cat Aleuronat was inserted into the pericardium on Aug. 6, 1936. A second operation was done on Nov. 13, 1936, and a pedicled omental graft was sutured to the intact and adherent pericardium.

The animal was killed on Aug 21, 1937, and injection carried out in the usual way. The coronary tree was completely filled with the injected material. Fig. 5 shows the circumflex branch of the left coronary artery containing the injected material

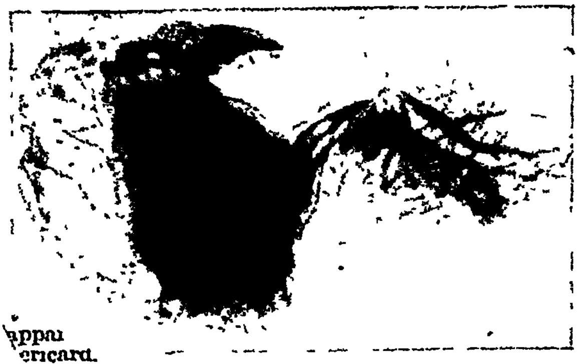
This finding is also of clinical importance, for it is sometimes desirable to apply the graft to an adherent pericardium, because its separation may entail the loss of already vascularised collateral vessels We have also to face the possibility that some of our patients already revascularised by aleuronat may require further revascularisation at a later date, and it was essential for us to know that this could be achieved through an intact pericardium

CARDIOPNEUMOPEXY (LEZIUS)

EXPERIMENT.—Cat. Cardiopneumopexy performed on June 15, 1937. The pericardium was opened widely, and after mobilisation of the lower lobe of the left lung it was sutured to the anterior cut edge of the pericardium. Aleuronat paste was applied to the surface of the heart. The phrenic nerve was left intact. Recovery was uneventful

The animal was killed on April 4, 1938, and the lung graft was found firmly adherent to the heart The heart and the lungs were removed from the chest and the right lung and the upper lobe of the left lung were excised, leaving the left lower lobe attached only by adhesions to the heart Thorotrast was injected into the cavity of the heart through the aorta, and the radiogram (fig. 6) shows complete filling of the vessels of the lobe.

EXPERIMENT—Dog. Cardiopneumopexy performed on Jan. 1, 1938, as in experiment just described



[Fi]llateral ardiopneumopexy (Lezius). Radiogram of h lced eleft lower lobe of lung of a cat showing filling of vessellaris lobe by injection of thorotrast into cavity of heainal ve

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* The aleuronat we use at the Lambeth Hospital is supplied by Baird and Tatlock (London) Ltd, 14, Cross Street, E C 1.

The animal was killed on April 9, 1938, and the lower lobe was found to be firmly adherent to the heart The specimen was prepared as in the corresponding experiment on the cat, but the thorotrast was injected into the pulmonary artery The radiogram (fig 7) shows that under these conditions filling of the coronary vessels could be obtained

Summary

Histological and injection studies are presented, demonstrating that vascular connexions will develop between the vessels of the myocardium and extracardiac vessels (*a*) when cardiopericardial adhesions are produced with aleuronat, (*b*) when a pedicled omental graft is introduced into the pericardial sac and adhesion between omentum and heart is stimulated with aleuronat, and (*c*) when omentum is grafted to the outer surface of the pericardium after the production of cardiopericardial adhesions

Collateral communication will develop between the pulmonary and coronary circulations if a lobe of the lung is grafted to the myocardium

One of us (L O'S) wishes to record his debt to the Medical Research Council for scientific and financial assistance

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CANCER OF THE ALIMENTARY TRACT

ITS PATHOGENESIS AND ITS PROPHYLAXIS

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(Concluded from p 558)

II—Carcinoma of the Œsophagus

THE UPPER ŒSOPHAGUS

In discussing the ætiology of carcinoma of the œsophagus it is necessary to consider separately those cases in which the upper extremity in the neighbourhood of the pharyngo œsophageal sphincter is involved Strictly speaking, this condition is not a growth of the œsophagus, for it always begins in the postcricoid part of the pharynx, though it ultimately extends to the mouth of the œsophagus As Trotter and Waggett independently pointed out in 1913, epithelioma in this position occurs almost exclusively in women, in striking contrast with the disease in the region immediately proximal to it and in the rest of the œsophagus, where it is fairly common in men but very rare in women This curious sex-distribution is probably due to the fact that epithelioma in the postcricoid region is the result of malignant degeneration of the atrophic mucous membrane, which is present in the pharynx as well as the tongue in the so called Plummer Vinson syndrome, a condition occurring in women between the ages of 30 and 50 but almost unknown in men Paterson, who described this syndrome of upper dysphagia with anæmia in 1906, eight years before Plummer and fifteen years before Vinson, pointed out in 1910 that it may be followed by carcinoma Already in 1913 Trotter had observed that women with cancer of the mouth of the œsophagus often gave a long history of dysphagia preceding the onset of malignant disease In a series of papers published between 1920 and 1937 Wassink of Amsterdam again referred to the frequency with which a long history of dysphagia is obtained in women with epithelioma of the upper end of the œsophagus, and at the same time drew attention to its association with atrophy of the mucous membrane of the tongue and pharynx, cracks at the angles of a stiff and narrow mouth, loss of teeth, and spoon shaped brittle nails, all of which are characteristic features of the upper dysphagia with anæmia syndrome Ahlbom of Stockholm (1936) found that of 153 women with cancer of the buccal cavity and upper end of the œsophagus, 99, or 65 per cent, had suffered from "idiopathic hypochromic anæmia" with or without upper dysphagia for five to twenty years before the onset of malignant disease

MIDDLE AND LOWER ŒSOPHAGUS

In the act of deglutition food is conveyed rapidly down the œsophagus by peristalsis till it reaches the closed cardiac sphincter The sphincter then relaxes and the food passes into the stomach, but even with full relaxation the lumen of the sphincter is less than that of the rest of the œsophagus, hence there is an appreciable delay in the passage through the lowest two inches This explains why the stricture which follows the swallowing of corrosive poisons is always most severe in the lower end of the œsophagus Similarly any less violent irritant which may be swallowed is in contact longest with the mucous membrane of the last two inches of the œsophagus This doubtless explains why the commonest situation of carcinoma is at the extreme lower end of the œsophagus The next most frequent position is opposite the bifurcation of the trachea, where the passage of food is slower than immediately above and below owing to the anatomical narrowing which occurs in this situation

Whereas carcinoma of the stomach and colon is no commoner in males than in females if allowance be made for the frequency of cancer of the breast and uterus in women, this is not the case in the middle and lower end of the œsophagus, where cancer is rarely found in women This can only be due to a sexual difference in the extrinsic causes, the most important of which are probably tobacco and alcohol, both of which must exert a much more concentrated action on the mucous membrane of the œsophagus than of the stomach, for the former is always empty, whereas the irritant is diluted by food and gastric juice in the stomach Lamy (1910) found a history of alcoholism in 80 per cent of 134 patients and Samaja in 80 per cent. of 106 patients with cancer of the œsophagus. The effect of alcohol is also shown in table IX, from which it is clear that the incidence of carcinoma of the œsophagus is more than four times greater in the alcohol trades than in the general population, whereas in carcinoma of the stomach the difference is much less obvious and there is no difference at all in carcinoma of the colon. From 1930 to 1934 the consumption of spirits and beer per head of the population in Holland was less than half that in Great Britain (Shaly 1937) This may explain why cancer of the œsophagus is relatively commoner in England than in Holland in contrast with cancer of the stomach, which has only a slightly higher incidence in the alcohol trades but is much commoner than in Holland for reasons already given

TABLE IX—INCIDENCE OF CARCINOMA OF THE ŒSOPHAGUS, STOMACH, AND INTESTINES IN ALCOHOL TRADES AND CLERGY COMPARED WITH THAT IN ALL MALES RECKONED AS 1000 (1921–23) FROM THE REGISTRAR-GENERAL'S DECENNIAL SUPPL , 1927

—	Œsophagus	Stomach	Intestines and rectum
All males . ..	1000	1000	1000
Barmen	4289	1881	1031
Cellarmen	4577	885	—
Waiters	4082	1871	756
Anglican clergymen .	175	590	—
Roman Catholic priests .	1144	315	—
Ministers of other religious denominations	237	468	—

Whereas the malignant degeneration of the atrophic mucous membrane in upper dysphagia with anæmia develops comparatively rapidly, malignant degeneration of the chronically inflamed mucous membrane in other parts of the œsophagus occurs only after the irritation has been continued for many years This is shown by the fact that the incidence of postericoid carcinoma in women is greatest between the ages of 30 and 50, whereas that of carcinoma in the middle and lower œsophagus is greatest between the ages of 50 and 70 (Turner 1920)

Achalasia of the cardia and carcinoma of the œsophagus—In achalasia of the cardia the mixture of stagnating food and saliva within the dilated œsophagus becomes readily infected, and the irritating products of fermentation and putrefaction cause œsophagitis, which may be accompanied by superficial ulceration of the mucosa The ulcers may heal and lead in turn to epithelial hyperplasia with the production of leucoplakia and small wart-like nodules, from which a squamous-celled carcinoma may arise. The occurrence of carcinoma within a dilated œsophagus in a man of 84, who had had difficulty in swallowing for over forty years, was described and illustrated by Hilton Fagge in 1872 Other similar cases have been described by eleven French and four German authors quoted by Sargnon (1938), and in 1926 Rake and I observed one in a man of 69, who had had symptoms of achalasia of the cardia for 35 years

We also described (1930) the case of a man of 43 who was admitted to hospital in the last stages of malignant cachexia He gave a history of difficulty in swallowing for many years. Secondary nodules of carcinoma were felt in the right tibia, but the primary tumour was not discovered before death, which occurred four days after admission At autopsy a greatly dilated œsophagus was found without any organic obstruction and with no hypertrophy of the cardiac sphincter. It contained quantities of decomposing food debris. The mucous membrane was severely inflamed and had many epithelial warts scattered over its surface, one of which had become malignant.

PROPHYLAXIS OF CANCER OF THE ŒSOPHAGUS

The anæmia of " upper dysphagia " responds very well to treatment with iron in large doses The passage of a mercury bougie or an œsophagoscope overcomes the dysphagia, so that it becomes possible to take an adequate diet Within a short period the atrophic glossitis and pharyngitis disappear and the cracks at the corners of the mouth are healed. Waldenstrom (1938) has shown that large doses of iron with no other treatment cause all symptoms to disappear, even if there is no anæmia, the trophic changes in the mucous membrane of the tongue and pharynx (and the resulting dysphagia) as well as in the skin round the mouth and in the nails being apparently the result of a special form of iron deficiency. There is no record of a case of idiopathic hypochromic anæmia with upper dysphagia which has been adequately treated developing cancer; hence its early recognition and treatment can be regarded as one of the most striking examples of true cancer prophylaxis

For many reasons excessive consumption of strong alcoholic drinks and excessive smoking, especially of strong tobacco, should be avoided Not the least important is the possibility that when continued over long periods they may act as exciting causes of cancer. Since the effect of the irritation is cumulative, it is never too late to advise an alteration in habits, for the chronic œsophagitis which results from long continued irritation disappears when the irritants are no longer present.

III—Cancer of the Colon *

INCIDENCE

Whereas the incidence of cancer of the stomach in the very poor is over double that in the well to do, the incidence of carcinoma of the colon, including the rectum, is approximately the same in all classes (table I on p 553) It is considerably higher in men than in women, but if cancer of the breast and uterus be excluded no appreciable difference remains Moreover the percentage of cases of cancer of the alimentary tract and pancreas in which the colon is involved is approximately the same in men and in women · thus the colon accounted for 40 per cent. of 262 cases of carcinoma of the alimentary tract and pancreas at New Lodge Clinic and Ruthin Castle in men and for 44 per cent. of 101 cases in women The colon is involved in a considerably higher percentage of all cancer cases in Great Britain than in most other countries (tables II and III on p 553), but this is due to the low incidence of cancer of the stomach, for, if this be excluded, cancer involves the colon in about the same proportion of cases in Great Britain as in other countries It is clear therefore that, if allowance be made for the special tendency of women to develop cancer of the breast and uterus and for the low incidence of cancer of the stomach in Great Britain, there is no special liability in any social class, in either sex, or in any country for cancer of the colon to develop This indicates that the development of cancer in the colon, unlike that of the œsophagus and stomach, depends on intrinsic causes alone This is not surprising, for the mechanical, chemical, and thermal irritants, which act as exciting causes of the precancerous disorders of the œsophagus and stomach, are no longer effective after they have passed the ileocæcal sphincter Mechanical irritants have been softened and broken up, chemical irritants have been diluted, and the temperature of very hot and very cold food and drink has been brought to that of the body Most of this occurs in the stomach, but the process of softening and dilution continues in the small intestine, in which the most important chemical irritants, such as alcohol, are absorbed

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* The term colon is used in this section to include the rectum.

DISTRIBUTION THROUGH THE COLON

There is a remarkable difference in the incidence of cancer in different parts of the colon; this is shown in table X, which has been drawn up by combining the figures given by different British, American, and continental authorities, all of which agree fairly closely with each other The differences are probably due to the varying functions of different segments of the colon The high incidence in the pelvic colon and rectum, compared with that in the more proximal parts, may be associated with the fact that their contents are more solid and consequently cause more mechanical irritation The cæcum and ascending colon are affected relatively often, because they are more constantly filled than any other part of the large intestine except the pelvic colon and are subjected to irritation by the products of bacterial activity, which is greater in them than in any other part of the alimentary tract The transverse and descending colons are comparatively rarely affected, for in most people they are empty during the greater part of the day, acting simply as a tube connecting the proximal colon, in which fluid is absorbed from the fæces, and the distal colon in which the fæces are stored and still more water is absorbed until the time comes for expelling them The splenic flexure is involved as frequently as the whole transverse colon and descending colon together on account of the acuteness of the angle it forms compared with the obtuse angle of the hepatic flexure, this results in increased friction when fæces are conveyed by mass peristalsis from the proximal to the distal part of the colon The pelvirectal flexure is the commonest of all situations, for it is the point at which the onward passage of fæces brought from the proximal colon is normally arrested, and it is therefore in contact with hard fæces for longer periods than is the rest of the pelvic colon, moreover it forms a very acute angle and is subjected to a considerable degree of friction during defæcation The rectum is less frequently involved than the pelvic colon or pelvirectal flexure because it is only in contact with hard fæces for a few seconds each day during defæcation, except in people with dyschezia—i e, constipation resulting from inefficient defæcation It seems likely that dyschezia, which is exceedingly common, would predispose to cancer of the ampulla, but I know of no evidence for or against this possibility

TABLE X—PERCENTAGE INCIDENCE OF CARCINOMA IN DIFFERENT PARTS OF THE LARGE INTESTINE

Large intestine, excluding rectum				Rectum excluding rest of large intestine	Whole of colon, including rectum
Cæcum	15	25	50		25
Ascending colon	10				
Hepatic flexure	5				
Transverse colon	5				
Splenic flexure	10				
Descending and iliac colon	5				
Pelvic colon			50		25
Pelvirectal flexure				65	50
Ampulla of rectum				30	
Anal canal				5	
Total			100	100	100

PRECANCEROUS CONDITIONS OF THE COLON

Adenomata—The pathological investigations of Dukes (1925, 1932) in association with the surgeons of St Mark's Hospital for Diseases of the Rectum, especially Lockhart Mummery (1928, 1935) and Gordon Watson (1938), have shown that carcinoma of the colon, including the rectum, is generally the result of malignant degeneration of simple adenomata This work has been confirmed especially by R Bensaude and his assistants (A Bensaude and others) in France, Schmieden and Westhues in Germany (1927), and Rankin, Bargen, and Buie in America (1934) Simple adenomata of the colon apparently form as the result of an inborn tendency for groups of cells of the epithelium to undergo hyperplasia, especially in those parts which are most exposed to irritation (Dukes 1925) They are never congenital but often develop in childhood, and new adenomata may continue to form throughout life A single adenoma may be present at a time, but any number may occur together, and in extreme cases the whole of the colon may be covered with innumerable polypi, the condition being then known as polyposis or adenomatosis coli The tendency to develop polypi is often familial

In 1914 I published an account of three children in a family of four, each with a single rectal polyp I had no opportunity of seeing the eldest, a boy of 17, but he had suffered for several months between the ages of 1 and 2 from severe rectal hæmorrhage, from which he nearly died There had been no recurrence, but it seems likely that he too had a polyp

The second boy, aged 13, had pain on defæcation and passed a little blood twice in 1910 His mother brought him to see me in November, 1913, for she thought his symptoms had been like those of his younger brother and sister, who had already had polypi removed although he had been well since 1910 I removed a small polyp from his rectum

The third child, a girl aged 12, had been in Guy's Hospital twice in 1908 for severe rectal hæmorrhage, which recurred in 1912, when I found and removed a rectal polyp

The youngest child a boy of 8, passed blood and mucus in 1913, and I removed a single polyp from his rectum

There had been no return of symptoms when I last saw the children in May, 1914 I sigmoidoscoped both parents, but neither had a polyp

In September, 1910, A B, aged 53 consulted me on account of discomfort which I thought was probably caused by an early growth in his hepatic flexure There was no palpable tumour radiography after an opaque meal and enema showed nothing abnormal, and the stools contained no occult blood

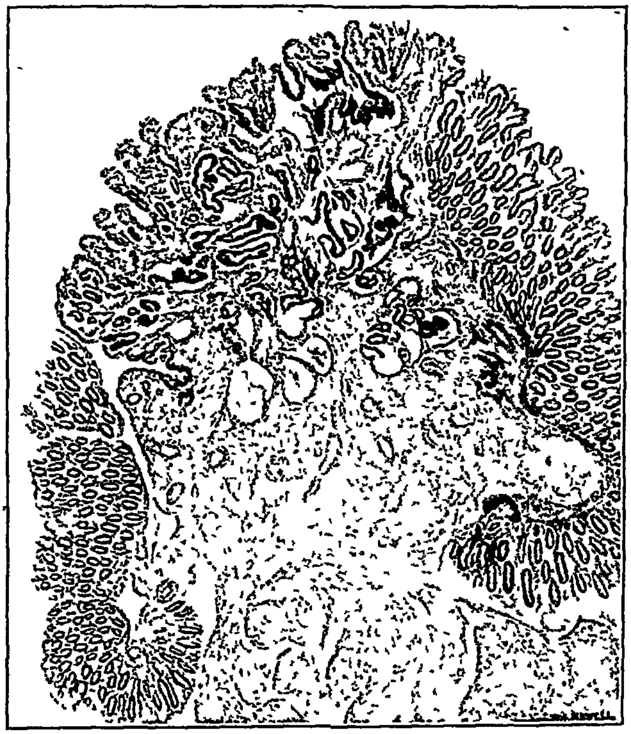
A diagnosis of "irritable colon" was therefore made, and the patient recovered with suitable treatment.

In March, 1925, C. B., aged 61, brother of A. B, came to the Clinic with almost identical symptoms. I expected to find that he too had an irritable colon, but further investigations revealed the presence of a growth in his hepatic flexure, which was excised the following week.

In August, 1928, A. B. came to the Clinic with a recurrence of the symptoms he had had nine years earlier; he had been completely well in the interval Investigations now showed the presence of a growth in the hepatic flexure, which was subsequently excised.

It seems probable that both of the brothers had an adenoma of the hepatic flexure. In 1919 A B's was still simple and may have given rise to symptoms by producing a temporary intussusception. By 1928 it had undergone malignant degeneration. Meanwhile C. B, without any preliminary symptoms, developed carcinoma from an adenoma in the same situation.

In early cases of carcinoma of the colon the adenomatous origin is often obvious Cain found evidence of malignant degeneration in 16 out of 68, or 23 per cent, of solitary adenomata removed from the rectum and pelvic colon at the Hôpital St Antoine in Paris between 1920 and 1937 (Bensaude). Schmieden and Westhues (1927) found simple adenomatous tissue in some part of the tumour in 15 per cent of their cases of cancer of the rectum removed by operation.



Adenoma of rectum becoming malignant

In 1931 a woman of 59 was under my care with familial telangiectasia and epistaxis Thinking that it would be of interest to see if any telangiectases were present in the mucous membrane of her rectum and pelvic colon I sigmoidoscoped her, although she had never had any intestinal symptoms or passed blood or mucus in her stools. There were no telangiectases, but a polyp, ½ in. in diameter, was found in her rectum Although it looked and felt like a simple adenoma, microscopical examination by Dr. Cuthbert Dukes after its removal by Sir Charles Gordon-Watson showed definite malignant changes at its apex; the malignant cells had broken through the muscularis mucosæ and begun to invade the submucosa, but they did not extend to a greater depth (see figure). Four years later a local recurrence took place, and soon afterwards she died with secondary deposits in the liver.

Stewart (1931) has investigated the incidence of intestinal polypi in autopsies performed at the Leeds General Infirmary From 1910 to 1921 the incidence was only 0 29 per cent and from 1922 to 1928 0 67, but from the beginning of 1929 to May, 1931, during which period a much more detailed study of the colon was made in every case, it rose to 4·19 per cent of 1815 autopsies. It is clear that only the records of the third period can be regarded as reliable, and it is probable that the true incidence is even higher than these would indicate. During the same period there were 79 cases of carcinoma of the colon Polypi and carcinomata were present together in 21 cases, or 28 per cent, of the colons with polyps and 26 6 per cent of those with carcinoma In 75 per cent of 33 specimens of carcinoma of the rectum and pelvic colon removed by operation Dukes (1925) found that one or more simple adenomata or minute hyperplastic nodules were also present Schmieden and Westhues (1927) found a similar coexistence in 45 per cent of their cases and Bensaude (1938) in 27 out of 95 cases

After one adenoma has been removed others continue to form, and from any one of these a carcinoma *may develop* Thus *in* 24 *out of* 50 cases in which Lockhart-Mummery (1935) had removed a polyp another tumour subsequently developed in a different part of the rectum or pelvic colon, and of these 11 were malignant. In 13 cases adenomata developed more than once in different sites, 4 patients had 9, 8, 7, and 6 adenomata in 8, 15, 6, and 14 years respectively A local recurrence *of a growth* after excision of the colon or rectum for cancer is probably *more often* due to malignant degeneration of a new or co-existing adenoma than to the further development of malignant tissue left at the time of the operation.

The fact that polyps are so frequently multiple explains why two or more carcinomata develop simultaneously or in sequence much more frequently in the colon than in any other organ *Gabriel* (1937) found 8 double cancers of the rectum or the rectum and pelvic colon in 100 consecutive excisions, and many cases have been recorded in which two or even three independent carcinomata of the colon coexisted with numerous simple polypi (Stewart 1931, Abel 1929, *Norbury 1930, Morgan 1938*)

Simple adenomata are much more evenly distributed through the colon than are carcinomata Thus in 23 per cent of 103 colons in which they were found at autopsy the cæcum and ascending colon were involved, in 35 per cent the transverse and descending colon, and in only 44 per cent. the pelvic colon and rectum (Klemperer 1938), compared with approximately 12 per cent., 12 per cent, and 75 per cent for these regions respectively for carcinoma These differences emphasise the probable importance of different degrees of local irritation in the formation of simple adenomata (Dukes 1925) and still more in their conversion into carcinomata, as I have already discussed

The rare villous papillomata of the rectum are even more likely to undergo malignant degeneration than are ordinary adenomata Thus 45 per cent of Bensaude's cases developed carcinoma, and Dukes found that about 10 per cent of rectal growths removed by operation showed definite evidence of having developed on a pre existing villous papilloma (Gabriel 1937)

Adenomatosis coli is a disease which is often familial and inherited and in which the whole or greater part of the colon is covered with innumerable adenomatous polypi, one or more of which sooner or later generally becomes malignant, often at a comparatively early age, with the result that the families tend to die out, as shown by the family trees published by Lockhart Mummery and Dukes (1928), Dukes (1930), and others Carcinoma was present in 62 per cent of the 29 Mayo Clinic cases, and in 25 per cent multiple carcinomata were found (Coffey 1938) No clear dividing line can, however, be drawn between adenomatosis coli, disseminated colonic polypi in which two or more adenomata are present, and single adenomata The two latter, it is true, are generally non familial, and the tendency to malignant degeneration is less than in the former But there was no family history of adenomatosis or cancer of the colon in 65 5 per cent of the 29 Mayo Clinic cases (Coffey 1938) and in the three which have been under my care, and disseminated adenomata and even single polypi, as in the four cases in one family already mentioned, may be familial Malignant degeneration is less frequent in single and disseminated multiple polypi than in adenomatosis, but this may be due to the fact that in the latter the chances of malignant degeneration are increased a thousandfold by the enormous number of adenomata, any one of which may become malignant Moreover in four generations of a family described by Lockhart Mummery (1935) there were six certain and one probable deaths from cancer of the colon and only two cases of adenomatosis coli In another family the father and seven out of nine children died of cancer of the rectum, and it was not until the third generation that adenomatosis occurred in four individuals Similar family histories have been recorded by Jungling (1928) and by Rankin, Bargen, and Buie (1934)

Ulcerative colitis —Carcinoma may develop as a complication of the polyposis which frequently develops in the process of healing in very chronic ulcerative colitis Most of the polyps are composed of mucous membrane covering inflammatory and granulation tissue, but a minority are true adenomata , this has been proved by microscopical examinations in several of my cases and at the Mayo Clinic Polyposis occurred in 10 per cent and malignant degeneration in 2 per cent of the Mayo Clinic series of 693 cases of ulcerative colitis , many of the latter were in young individuals, and the carcinoma was always of a high degree of malignancy I have seen 3 such cases, though none occurred in the New Lodge Clinic series of 66 cases of ulcerative colitis, in which the incidence of polyposis was 12 5 per cent (Hurst 1935) In one of my cases, a woman of 50, who had been ill for several years, active ulcerative colitis, polyposis, and a carcinoma of the rectum were all present together when I first saw her, a fortnight before her death from exhaustion

Diverticulitis might be expected to predispose to cancer, but statistics show that the incidence of carcinoma as a complication of diverticulitis of the colon is no greater than in the general population Thus in a review of the Mayo Clinic records, including 1800 cases of diverticulosis, of which 625 showed diverticulitis and 19 carcinoma, and 1600 cases of carcinoma coli, of which 19 showed evidence of diverticulitis, there was only one case in which there was good evidence that the carcinoma developed on an inflamed diverticulum (Fallow 1930) The smaller clinical statistics of Spriggs from Ruthin Castle (1937) and ours from New Lodge Clinic and Stewart's post-mortem statistics (1931) confirm the view that diverticulitis does not predispose to the development of cancer of the colon

Megacolon —In one out of my 30 cases of megacolon a carcinoma had developed in the dilated colon This was in a man of 64 A similar association was observed in a single case by R Bensaude (1920) This is analogous to the occasional development of cancer in megaœsophagus to which I have already referred

PROPHYLAXIS

The prophylaxis of carcinoma of the colon consists mainly in the diagnosis and removal of polypi. It is still insufficiently recognised how frequently a polyp leads to the passage of bright blood per anum It is the cause in almost all cases in children and in the majority of young adults, but at all ages a proctoscopic as well as a digital examination should be made before diagnosing hæmorrhoids as the cause of bleeding Lockhart Mummery (1935) has made the wise suggestion that any patient who has once developed a polyp of the rectum or pelvic colon should be examined every four months until no new one has appeared for five years, so that each new one can be removed or destroyed as soon as it develops A carcinoma developed only once when this was done in his series of 50 cases, and in that case the original adenoma was in the rectum and the later one, which became malignant, was in the pelvic colon out of reach of the sigmoidoscope

Polyposis should be treated by colectomy as soon as it is recognised The ileum should be joined to the pelvic colon as near to the pelvirectal flexure as possible It is then possible to destroy gradually all the polypi in the rectum and remaining portion of the pelvic colon by diathermy cautery through a proctoscope and sigmoidoscope This treatment proved very satisfactory in two out of my three cases in which it was done The near relations of a patient with polyposis should be examined, if possible, so that any accessible polypi can be recognised and destroyed even if they have so far given rise to no symptoms The polyposis following ulcerative colitis calls for similar treatment In a few cases I have observed the disappearance of the polypi after the application of deep X rays , so this treatment should be tried before resorting to colectomy, but only if all active colitis has disappeared

It seems probable that chronic irritation of the colon is a factor in the development of carcinoma from simple adenomatous polyps and possibly also in the development of the latter It should therefore be remembered that constipation leads to far less irritation of the colon than do the purgatives which are commonly employed in its treatment Re education of the normal defæcation reflex, a suitable diet, and, when necessary, the administration of liquid paraffin and an unirritating vegetable mucilage, such as cortine or isogel, will cure the large majority of cases of constipation

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(*Continued at foot of next page*)

ORGANIC PSYCHOSES IN CHILDREN *

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My object in choosing the problem of organic psychoses in children is twofold. First, I think a study of the organic deteriorations is valuable in focusing attention on symptoms which are common to any deteriorating process in childhood Secondly, I hope to provoke a discussion as to delimitation and demarcation, which should help to clarify our conceptions of schizophrenia in childhood By this, I do not want to seem to assume that psychosis in childhood means schizophrenia, apart from the organic group; but I do not propose to include manic-depressive cases in this discussion, since they are certainly rare in childhood. Besides, those cases which have been described show so many schizophrenic features that we might get no further than trying to decide whether or not manic-depressive psychoses can be distinguished in childhood.

SYMPTOMS

Certain symptoms occur more often in the psychoses of childhood than in those of adults This is understandable when it is borne in mind that we are dealing with a profound and usually irreversible morbid process in an organism which is still in a state of undetermined growth. Certain aspects of character and training are recently inculcated; others have as yet not made their appearance For instance, no case of real delusional formation has been reported in a psychosis in a child under 6 years of age, whereas it is common in the adult. What can be picked out from available material and reported cases as early symptoms characteristic of the juvenile case?

Lutz (1937) gives a very comprehensive summary of all the reported cases of authenticated juvenile schizophrenics and adds cases of his own He points out how similar are the early changes in the organic group, in which the physical interference with function appears to be responsible for the clinical picture He instances as the essential feature the severe and irreversible disturbance in the child's relationship with and attachment to its environment It is as if the rootedness to reality undergoes a profound change, with the result that in its place grows up an increase in self-centredness or what may be shown as an over-concentration in the world of fantasy. (I am not sure how far I hold with this as a universal concept, for many juvenile cases show a rather characteristically weak attachment to anything—i e, apathy rather than preoccupation) No-one would mistake the importance and vividness of fantasy-life to the normal child What is abnormal is the "Mary Rose" quality of the compelling interest away from reality.

Secondly, Lutz instances the frequency of early disturbance of speech. This is in sharp contrast to the frequency of this symptom as a *late* manifestation in the profound dementias in adults (The early involvement of the speech mechanism in G P I. is a symptom of a different order) The point is that in childhood speech is not stabilised before the second year or later and is then still developing It tends therefore to suffer out of proportion in childhood psychoses in comparison with adult psychoses This symptom is worth observing carefully because of its value in differential diagnosis. Thus the meaningless repetition of words, the tendency to mimic and repeat what is said, and the various forms of mutism shown by children who are emotionally disturbed take on a graver significance when these symptoms accompany others suggesting a psychosis, especially when they persist and become an integral part of the child's abnormal behaviour.

Certain emotional responses tend to stand out in psychotic children Some of these strongly suggest a neurotic mechanism, but seen in association with other disturbances they take on a more sinister aspect Examples of such responses are certain types of obsessional behaviour, excessive fastidiousness, and an insistence on orderliness which tends to cramp the child's own free expression and activity Anxiety is averted by such rituals, but in a way which often seems to inhibit further development Somewhat similar are the outbreaks of apparently meaningless anxiety either so diffuse as to affect almost every activity of the child or attached to some relatively indifferent activity which can be understood only in symbolic terms—for instance, a child who showed tremendous fear in passing tall buildings This was not related to any such idea as that the building would collapse on him, and he was unable to explain it to himself

In many cases in which these particular instances are not exemplified there is a widespread alteration in emotional response, an uncertainty both in quality and quantity, which is highly characteristic Uncontrollable outbursts of temper, excessive grief over trivial deprivations, excited laughter after some irrelevant stimulus, coupled with an indifference and apathy on other occasions, are among the most distinctive features of such cases The impression given is often not that of a repression so much as of an uncertainty of control. These children are notoriously "difficult," if only because their responses are unpredictable from day to day.

In the more developed case certain bizarre features may obtrude on the behaviour, as, for example, the various forms of stereotypy. It is not uncommon

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* A paper read at the fourth biennial inter-clinic conference of the Child Guidance Council, London.

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to meet stereotyped tic like movements, abnormalities of gait and posture which are maintained apart from organic lesions, and, in the realm of speech, repeated phrases or nonsense words Behaviour patterns seem inclined to set into these stereotypies, as if the psychic material had become less plastic and more prone to adopt a stultified response When the intellectual functions are examined, the difficulty of access becomes manifest Good contact may be disturbed by negativism, by lack of interest, by fleeting and variable attention, and by true flight of ideas, and the output may be checked by incoördination, lack of drive, inhibition, or the qualitative deterioration which has set in Retrospectively, it may be impossible to assess the validity of the early history, the developmental stages may have been imperfectly observed and have often never been recorded In spite of these difficulties it may be possible to establish how far, and up to what point in time, development was normal and then to distinguish in what manner and by what agencies this normal course was interrupted or deflected In the organic group under consideration the deflection may be sudden, as in the encephalitics, or insidious, as in Schilder's disease What is perhaps characteristic for the group is the tendency for isolated abilities to persist alongside the most surprising lacunæ Obviously, here more than anywhere, the ultimate syndrome is that of the dementia common to all, and the clinical picture must include a longitudinal section of development as a whole, as well as the cross section shown at the time of examination

The same applies when the physical functioning of the child is disturbed in such ways as sleeplessness, vagaries of appetite and of growth, and habit mechanisms, such as control of excretions, which can be determined as much by emotional disturbance as by intellectual failure Development in these aspects may stop short of maturity or may regress to stages already mastered, and curious anomalies are to be noted, as, for example, a child aged 11 requiring spoon feeding at meals, who attended scrupulously to herself in all matters of toilet and dress

In discussing a series of organic cases, almost limited to one example of each, it is obvious that no generalisations can be made I hope, however, to direct attention to points which may be raised in discussion, such as the following —

(1) How far such studies may be regarded as elucidating an anatomy, if not a physiology, of deterioration

(2) How far can such cases be seen as allied to schizophrenic deterioration in children

(3) Some of the symptoms in this organic group are like those shown in a schizophrenic illness Are they here the result of pathological processes, such as G P I or epilepsy, or are there two diseases side by side? This latter can hardly be considered in the groups with a specific pathology, but it is a real problem in diagnosis in some cases of psychotic amentia, Weygandt's *Pfropf hebephrenie*, and the epileptic case described

(4) What features must be regarded as essential in establishing a diagnosis of schizophrenia in childhood?

CASE RECORDS

The first case is one of congenital general paralysis of the insane

CASE 1 —A girl aged 9, with congenital G P.I, was referred by a general hospital as presenting a definite behaviour problem for six months Her early development was normal, she walked and talked at 18 months and was clean at 9 months, with no subsequent failure in habits She slept and ate well, and apart from whooping-cough had had no illness She did not suffer from fits Teeth were extracted for early decay when she was 3 or 4 years old

Her interests were school, toys, and other children, but all rather as if she were younger than her age She was affectionate, rather impulsively so, and excitable with other children Recently there had been outbursts of more uncontrolled excitement and gaiety and fits of giggling For the last six months she had taken to calling out "bitch, slut, pig, rat" to her mother, repeating this for no apparent reason, as if the words were on her mind At the same time she had become increasingly irritable, with outbursts of violent temper when "crossed."

Psychologically, she was like a younger child, emotionally unstable, and over dependent Her attention was fleeting Her I Q was 81, probably higher Her behaviour was silly, childish, uninhibited, and outgoing, as well as timid Definite physical signs included slightly altered speech (hardly more than a babyishly unclear diction), unequal pupils, and extensor response on one side The diagnosis was confirmed by lumbar puncture

Even in this congenital condition, with rapidly advancing deterioration, there is time for a phase of emotional instability, temper outbursts, and pre occupation with words of sexual significance to show itself The rapport with her surroundings was good within her capacity, any alteration was in the direction of impoverishment rather than in any degree of withdrawal

The next case is one of Schilder's disease

CASE 2 —A girl, aged 10, with Schilder's disease, had "nerve attacks," refused to go to school, and would not look at objects, saying she could not see This latter feature was undoubtedly due to the onset of cortical blindness, but it was observed for 5½ years before a definite diagnosis was made During this time she was able to go about the house and do simple tasks and never collided with objects

Her early development was normal and her family history negative Her birth had been difficult She had had no convulsions and walked and talked before 18 months She easily learnt clean habits She had had no serious illness She was an only child She began school at 5 and enjoyed it but never learnt to read She was slow, shy, and retiring, and was upset by children teasing So-called "nerve attacks" took the form of negativistic behaviour, when she would be mute towards others but talked to herself In school she was either entirely passive and apathetic or would repeat some action or phrase over and over again

It was impossible to obtain coöperation in an attempt to examine her psychologically She was well grown and showed no physical signs except a curious slow creeping walk and groping as if she did not see Her responses were slow and at times as if she were wilfully stupid or preoccupied—e g, describing a somewhat swarthy physician as "white-haired" Her emotional state varied She was seen in moods of tearful reasonless anxiety or else she was fatuously cheerful, chattering and repeating disjointed phrases in a way reminiscent of schizophrenic fragmentation "My aunt is mad My dad has got Spanish in his eyes I'm Spanish" Her movements were poorly coördinated She would repeatedly touch objects or move her bag in a stereotyped way, once she said that people in the street talked about her

The condition progressed The earliest physical sign was a double extensor response, and the final dementia was profound and not in any way distinctive She became mute, semi-stuporose, and incontinent

The next two cases are of schizophrenic like development in boys with retarded mentality Certain rather similar personality traits are to be noted.

CASE 3.—A boy, aged 15, worried, bit his nails, fidgeted, and stared into space. He had been born after prolonged labour and was the eldest of four. The family history was negative. He had been difficult to rear and was under weight He crawled at 1 year, walked at 18 months, and talked at 2. Clean habits were learnt late: control of fæces at 6 and of urine at 8. He had often been ill and had had bronchitis and pneumonia At school he was timid, cautious, and rather backward. He was afraid of other children and preferred younger children. He had no pride in his appearance.

His I.Q. was 72 and his performance consistent with his age. He was of poor physique with a small head. He bit his nails, fidgeted, and showed habit spasms. His speech was defective. He was apathetic, timorous, had no interests, and was becoming more withdrawn. At the same time he had outbursts of alarming temper at home if he were thwarted. Some anxiety was directed to fears as to his physical health. Occupationally, he failed when faced with difficulty, becoming vacant and indifferent.

CASE 4.—A boy, aged 14, was brought with the complaint that he was "quiet and had no pride in himself." A maternal aunt and his maternal grandmother had been insane. He was an only child, with a normal early history, retardation being doubtful. He was neglectful but not incontinent. He walked and talked at 18 months. He never joined with other children, being too passive, and would let them snatch his toys

He never showed affection, but he depended excessively on moral support from his mother and two maternal aunts. Certain tics of face and lips and manual mannerisms persisted and tended to increase. His articulation was not clear, and sometimes he refused to speak, showing periodic mutism. He had always had outbursts of childish temper; these were becoming worse and more frequent, and solitariness, apathy, and falling off of all social interests were becoming very pronounced. His I.Q was 78 and his performance rather higher, with a curious, almost specific, ability to memorise and manipulate numbers.

The next case is one of epilepsy with deterioration or complicated by schizophrenia.

CASE 5.—A boy, aged 8, was referred for nervousness. He had always been a difficult child The family history was negative apart from the fact that his mother had had three isolated fits during adult life. He was the only child of elderly over-particular parents.

His early development had been slightly retarded, but he was walking and talking by 20 months He was rather helpless, depending on his mother for help with dressing, this being as much her fault as his. He had had no serious illness. He never made friends with children, for he became too excited, and acted silly, and then they teased him.

Nervous movements and mannerisms were noted His I.Q. was 80–90. He was a precocious child in some ways but retarded in others—e.g., educationally. A psychological report says that he "spends energy avoiding difficulties rather than tackling them." Later, at the age of 9, he already felt that other children were discussing him unfavourably He said, "I wish I were dead." Once he was apparently hallucinated and stopped up his ears because he could hear other boys threatening him. At this time he began to have screaming outbursts if thwarted. There was a complete failure of adjustment when he was moved to a senior school. He had outbursts of excitement and rage followed by remorse and was removed from school.

Then began a phase of curious interests, collecting rubbish for his inventions. If thwarted, he would repeat that God made him do it, suggesting autistic thinking. There was a tendency both to mannerisms and stereotypy in speech—a meaningless repetition of "Beg pardon." A year later his mother found him one day alone in the house, cursing and swearing against God and his mother.

Subsequently he began to play truant and to wander. On his wanderings he continued to acquire curious detached bits of knowledge—e.g., of antiquities and minute details of tram routes. At the same time he was quite irresponsible, even over simple errands, although able to go off on his own all day. He would not be taken to church because he was so upset by the organ.

He gradually deteriorated, until at the age of 14 he had a fit Since then he has had several typical major epileptic fits, with a positive electro-encephalogram and without signs in the central nervous system between fits.

The next case is one of dementia, possibly due to encephalitis or Heller's syndrome.

CASE 6.—A boy, aged 9, had had a normal history until he was 3, when he was admitted to hospital for a mastoid operation. He became very quiet and dirty in his habits while in hospital. He recovered after returning home after a month of bad sleep and night terrors. Six months later there was some return of symptoms with whooping-cough, and again in six months, when separated from his mother by her being confined of a second child, his brother.

Two months before he was seen he witnessed an accident. He seemed not to notice but gradually became very silent. Next day he became excited, screaming, crying, and shouting with laughter at intervals. He had previously had a cold. Then came a rapid deterioration: he was mute, inattentive, and restless, and bit his clothes He seemed not to recognise his parents and screamed for them when they were beside him, but still he did not talk After an interval he began to repeat rhymes and sing or talk to himself, paying no heed to others. His behaviour was odd, and he assumed queer postures Since then there has been only very slight, if any, improvement

His mental level is that of an imbecile and his behaviour that of a low-grade defective and untestable. Echolalia and perseveration are present, and his articulation (diction) is unclear His movements are poorly coordinated, almost as if impulsive. There are no physical signs in the nervous system His sleep is now good, and he can care for himself in his simplest physical needs.

The next case is one of true schizophrenia.

CASE 7.—A girl, aged 12½, was worried and easily frightened and would not attend school. Her family history was negative. She was the younger of two siblings. Her early history was negative, except that she was never a good sleeper (cf also Tramer's (1934, 1935) case and Lutz's (1937) cases 5 and 6 and two cases quoted by him).

She was always nervous, especially when away from home, and antipathetic to strangers. She had no friends and was over-passive with other children, excessively careful and particular over her clothes, and very modest. She could not mix in ordinary social life since she was 10. Easily upset, she would have an emotional outburst, recently amounting to temper and childish negativism. She showed no affection.

Psychological examination was impossible. Physical examination was likewise impossible, except sufficient to exclude gross organic lesion, such as G P.I. She was negativistic, being resistive at times and apathetic and inert at others. She had some stereotyped movements and occasional grimacing. She repeated "Don't bother me; go away, don't bother me," and smiled to herself.

COMMENTS

The following features are common to all these cases:—

(1) Some failure in appreciation of reality values. The degree is least in the G.P.I. and most profound in the schizophrenic child.

(2) An emotional lability and easily provoked outbursts, with a fatuous affectionateness without lasting attachment in the G P I and a considerable degree of emotional detachment in the others

(3) A very early and lasting difficulty in establishing normal relationships with other children All these children failed to adapt to others' demands or were themselves over-passive in response In all but the G.P I this failure was sufficient to prevent the child's attending ordinary school

(4) Stereotypy in gesture, action, or speech (Obsessional features were shown by several)

(5) In all but one, the history of early development is within normal limits, but by the time school age was reached intellectual impairment was queried in all The importance of not accepting the diagnosis of backwardness without a careful inquiry must be emphasised, since by the time these cases came to clinical observation they were either untestable or, when tested, showed a retardation which on the history can I think, be taken as secondary in all but case 3 (? *Pfropf hebephrenie*)

Can the organic group furnish us with definite conclusions? Possibly only that the end point in childhood dementia tends to be the same, reached by a variety of pathological processes It seems clear, however, that organic factors may be difficult to exclude but must be constantly sought and rigorously excluded before a diagnosis of schizophrenia can be allowed Then, having made the diagnosis, we are faced with a condition carrying an equally bad prognosis, unless new methods of therapy in schizophrenia prove of more avail than the older ones

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HERPES SIMPLEX

STUDIES ON THE ANTIBODY CONTENT OF HUMAN SERA *

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Several investigations of the content of human sera in antibodies against herpes virus have been recorded Neutralisation tests have been chiefly used, but complement fixation was utilised by Brain (1932) The main incentive to such studies was the opinion of Levaditi and his colleagues (1922) that encephalitis lethargica was the result of infection of the central nervous system by an unusually neurotropic strain of herpes virus If so, some significant difference in the proportion of persons with herpes antibody would be expected from a comparison of postencephalitic patients with a control series of similar age and class distribution Several different methods of testing for antibody have been used Zinsser and Tang (1929) inoculated serum virus mixtures intracerebrally in rabbits, Andrewes and Carmichael (1930) titrated by intradermal inoculation in the rabbit and Weyer (1932) and Hudson, Cook, and Adair (1936) inoculated mice intracerebrally

On the whole the results obtained by the various workers have been consistent A high proportion of adult human sera, obtained usually from hospital patients, possess neutralising antibody figures varying from 60 to 90 per cent If one collects all the available data, irrespective of the method used for titration, 545 adult human sera have provided 405 positive results, *equal to 74 per cent* Sera from children show a lower proportion containing antibody Weyer (1932) found the following figures 0–5 years, 14 per cent , 5–10 years, 38 per cent , 10–15 years, 40 per cent Postencephalitic patients show approximately the same percentage of positive sera as do control groups Gay and Holden (1931) found that only 2 of 13 cases of acute encephalitis showed antibody to herpes, but this finding has not yet been confirmed Weyer (1932) found that all of 27 sera from children in the acute stage of poliomyelitis contained no herpes antibody As will be mentioned later, we have not been able to confirm this statement for Victorian poliomyelitis cases

Persons who suffer from recurrent labial herpes almost invariably have antibody in their sera (Andrewes and Carmichael 1930, Brain 1932) Gay and Holden (1931) came to a contrary conclusion, but our results are wholly in accord with the other workers

None of the previously reported work has been fully quantitative, the usual procedure having been to mix equal volumes of a 5 per cent brain emulsion and undiluted serum and to test the infectivity of the mixture after some arbitrary period of contact The primary object with which the present work was begun was to determine whether Weyer's observation of the absence of herpes antibody in children with poliomyelitis could be confirmed with material from the Victorian 1937 outbreak For this purpose an egg adapted sub strain of the well known H F strain of herpes virus was developed, and sera were titrated by the quantitative chorio allantoic technique (Burnet 1936) The studies on poliomyelitis sera gave no results of value, but several points of interest arose which seem worth reporting

TECHNIQUE

A detailed study of the kinetics of the herpes virus-antibody reaction is in course of publication (Burnet and Lush 1938), and full details of technique are given there In brief, the serum to be tested is heated to 56° C for 20 minutes before being used Equal volumes of undiluted serum and suitably diluted virus are mixed and left in the refrigerator for 1½–2 hours Then 0 05 c cm quantities are placed on the chorio allantois of twelve-day eggs, and the foci which develop after two days' further incubation are counted Results are expressed as the percentage of foci which appear in terms of the count obtained with control material

"ALL OR NOTHING" CHARACTER OF HUMAN ANTIBODIES TO HERPES

Andrewes and Carmichael (1930) commented on the absence of indeterminate reactions in their tests The sera all completely neutralised their test dose or showed no action whatever With the egg-membrane technique this sharp difference between positive and negative sera can be more quantitatively expressed In our series of tests on 120 sera only 3 gave values outside the ranges 0 1 per cent or less and 30–100 per cent Positive sera usually give values nearer to 0 01 per cent , and our practice with an unknown serum is to inoculate four eggs with a mixture of serum and undiluted virus and four with a mixture of undiluted serum and virus diluted 1 in 5000 In almost every instance one or other of these groups will give convenient small numbers of foci and allow an accurate value to be given to the serum. When it is only required to know whether a serum is positive or negative, stock virus is prepared by grinding a membrane (glycerolated in the refrigerator for a few days) with 5 c cm. of broth, centrifuging for five minutes in an angle centrifuge and using the supernatant fluid. Each serum is mixed with a 1 in 100 dilution of virus and tested on two eggs Negative sera give a semi-confluent lesion equivalent to about *1000 foci; positive sera give membranes without foci.*

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DIFFERING PROPORTION OF POSITIVE SERA IN DIFFERENT SOCIAL CLASSES

In Andrewes and Carmichael's paper there is a table showing the results with a group of "normal" persons Most of these were hospital patients, and 21 out of 23 had antibody. Five medical students also included in the group were negative This seemed hardly likely to be a matter of chance, and it stimulated us to sort out our results according to social status as far as that was practicable The accompanying table shows the results obtained with (*a*) graduate members of the institute or hospital staffs, (*b*) laboratory assistants, (*c*) unselected hospital patients (post-mortem and Wassermann sera), and (*d*) children with poliomyelitis in Fairfield Infectious Diseases Hospital It will be seen that the difference between university graduates and the cross-section of hospital patients obtained from unselected Wassermann sera is highly significant by any statistical test The relation of this finding to the epidemiology of herpes will be discussed later.

HERPES ANTIBODY CONTENT OF HUMAN SERA

Group	Antibody against herpes virus	
	Positive	Absent
Graduates	3	12
Non-graduate institute staff ..	13	9
Poliomyelitis cases	8	6
Hospital patients	51	4

Positive = Sera which reduce the count of foci on the developing egg below 0 1 per cent of the control

Negative = Sera giving a count of 5–100 per cent of the control

ABSENCE OF VIRUS IN GASSERIAN GANGLION OF PERSONS WITH HERPES ANTIBODY

The distribution of herpes zoster is most easily explained by the primary pathological process taking place in the corresponding posterior-root ganglion. There are, of course, very striking differences between herpes zoster and herpes simplex, but there are sufficient resemblances to suggest the possibility that the latter virus persists in the sensory ganglion which corresponds to the site of election for the local lesions —namely, the Gasserian ganglion. Teague and Goodpasture (1923) describe a case of supra-orbital herpes of the zoster type from which they obtained a virus pathogenic for the guineapig, and they refer to the work of Howard (1905), who noted *pathological* changes in the Gasserian ganglion of persons who had shown herpetic manifestations during life.

To test the possibility of detecting virus in the Gasserian ganglion of persons having high antibody titres, material was obtained from six consecutive post-mortem examinations None of the patients had suffered from herpes during the final illness. Serum was obtained by a Pasteur pipette passed through a small slit made in the ascending aorta. (This is a much more satisfactory way of obtaining post-mortem serum than by opening into any of the chambers of the heart The aorta nearly always contains almost pure serum.) After the brain had been removed, the base of the skull was swabbed out with spirit and the Gasserian ganglia removed to glycerol-Ringer solution The sera were inactivated and tested for herpes antibody: four were positive, two negative When these tests had been completed and the ganglia had been glycerolated for a week in the refrigerator, emulsions of the ganglia were made in 3–4 c.cm of broth. A rabbit was inoculated on the scarified cornea and the remainder of the emulsion injected intraperitoneally. None of the animals developed keratitis, nor were any herpes antibodies present in their sera taken fourteen days after inoculation Finally, all rabbits were inoculated corneally with the strain H F. All developed severe keratitis, followed by fatal encephalitis seven to nine days after inoculation. There is therefore no evidence that the virus is present in a demonstrable form in the Gasserian ganglion of persons with a high serum titre of herpes antibodies.

ABSENCE OF CORRELATION BETWEEN SUSCEPTIBILITY TO POLIOMYELITIS AND LACK OF HERPES ANTIBODY

Weyer (1932) found that among 27 sera from cases of early poliomyelitis there was no detectable herpes antibody in any. A control series from children not suffering from poliomyelitis gave 17 positive sera out of 43 tested. This finding appeared to have important implications: either that herpes and poliomyelitis had some fairly close antigenic relationship, or that children naturally unable to produce antibody against a ubiquitous virus like herpes were liable to suffer paralytic attacks of poliomyelitis, whereas the "good" antibody producers had only a subclinical infection.

During the serious Victorian epidemic of poliomyelitis 1937–38, serum samples were obtained for us by Dr. S. W. Williams from children in the acute stage and two to three months later from the same patients during convalescence These have been used primarily for studies on poliomyelitis antibodies, but they have also been tested for their antibody content against herpes virus As shown in the table, 8 of 14 patients showed herpes antibody in both samples of sera The other 6 contained no antibody in either Those with antibody showed the usual high activity without any significant difference between first and second samples Two pooled sera from monkeys convalescent from poliomyelitis showed no detectable antibody.

These facts are sufficient to show that Weyer's findings are not applicable to the conditions existing in Melbourne, and that, whatever the significance of the New York findings may be, they are not due to a common antigenic character of herpes and poliomyelitis viruses.

PRIMARY INFECTION WITH HERPES VIRUS

In an important recent paper Dodd, Johnston, and Buddingh (1938) state that herpes virus can be obtained from the lesions of aphthous stomatitis in *infants and young children, and they* consider that this disease represents a primary herpetic infection We have confirmed this finding with material from two children seen in the outpatient department of the Children's Hospital, Melbourne A fuller account of the condition will, it is hoped, be given later in collaboration with Dr. Williams. Here we are concerned only with the laboratory findings. From both cases, Y (aged two years) and B (aged 20 months), swabs from mouth lesions produced typical herpetic keratitis in rabbits, and from a membrane filtrate of the conjunctival pus of the primary rabbit lesion (Y) typical herpes foci were produced on the egg membrane. The inoculated rabbits developed herpes antibody, giving the following titres:—

R 174 (Y), 11 days 1·4 per cent, 21 days, 0·007 per cent
R.182 (B), 8 " 3·3 " 20 " 0·016 "

Almost conclusive evidence that this stomatitis represents the primary infection with the virus is given by the results of serological tests. Blood taken at the same time as the mouth swabs in both cases contained no significant antibody. The serum Y gave the full 100 per cent. count of foci, and B showed about 30 per cent., a value within the range we consider as negative, although it might also indicate a commencing antibody production. Serum taken three weeks later showed definite antibody, reducing the count of foci to 2·1 per cent. of the control in the case of Y, to 0·75 per cent. for case B. It will be seen that the sera are much less active than serum from an average infected adult, but the activity is sufficient to establish the primary nature of the stomatitis infection.

DISCUSSION

These results seem to provide material of considerable epidemiological interest, bringing herpes simplex infections much more closely into line with other virus diseases than has usually been recognised. In outline, the position seems to be that primary herpes is an infective disease spread by droplet infection or by salivary contamination, particularly in the age period of one to three years. The initial lesion is a vesicular stomatitis, often with fever, and not uncommonly associated with secondary bacterial infection. In all probability, once infection has been effected in infancy, the virus remains present in the body throughout life. In no other way is it possible to account for the fact, which has been strikingly evident throughout this investigation, that, irrespective of the age of the subject, if antibody is present at all it is present in high titre.

The sharp differences in regard to the proportion of positive antibody carriers in different social groups can hardly be explained except on the assumption that the serological state is determined early in life and not changed thereafter. There are considerable differences in the extent to which pre-school children mix in the different social grades, but during school and adult life opportunities for the spread of infection must be approximately equal. As a working hypothesis, we may adopt the view that, once maternally transmitted immunity has been lost, there is a period roughly from nine months to perhaps five years of age during which the child is readily susceptible to infection of the buccal mucosa by herpes virus. Once infection has been acquired, the virus persists in certain cells throughout life and provokes its characteristic manifestation, labial herpes, when conditions are suitable. After the period of early childhood we must assume the development of a resistance to primary extrinsic infection which is independent of the presence of circulating antibody. This resistance can readily be overcome when the virus is experimentally inoculated, for instance, as in Teissier, Gastinel, and Reilly's (1926) experiments on the scarified skin, but it is sufficient to prevent infection of the intact mucous membranes. Alternatively, if herpes infection takes place in older persons, the infection must be transient, provoking little antibody and not producing the permanent carrier state. In this connexion it is interesting to consider the only experimental virus disease which is known to persist under suitable conditions through the whole life of the animal—lymphocytic choriomeningitis in mice. Traub (1938) finds that mice infected in utero or immediately after birth develop an infection which not uncommonly kills them, but, if they survive, their tissues remain virulent for at least a year and probably for the whole life of the animal. When older animals bred from non-infected stock are experimentally infected, the virus persists for some time but is nearly always eventually got rid of completely. Against the view that adult primary infections do not produce persistence of the virus in the body is the evidence of Nicolau and Poincloux (1924) that a human subject accidentally infected with herpes may suffer recurrent lesions at the site of inoculation. Whatever alternative is adopted does not detract from the importance of infancy and early childhood as the determining period in regard to persistent herpetic infection.

The site of the persisting infection is still unknown. The two most important possibilities are that the virus remains dormant (1) in the nervous system, with the Gasserian ganglion as the most probable site in relation to labial herpes, or (2) in the epithelial cells of the buccal cavity, which is the locus favoured by Levaditi and his collaborators (1922). We have given evidence that the virus is not demonstrable by inoculation methods in the Gasserian ganglia of persons with high titre antibody in their serum. Unfortunately this is hardly conclusive. It is conceivable that dormant virus in a cell may not be liberated by grinding or even by digestion of the cell in the tissues of the inoculated rabbit. More important negative evidence would be to show the absence of virus in the ganglion of a patient dying at a time when recent herpes lesions were present, but no such opportunity has been available.

SUMMARY

(1) Herpes antibody in human sera can be titrated on the chorio-allantois. (2) With very few exceptions, human sera either contain no herpes antibody or are highly active against the virus. (3) Herpes antibody is much commoner in sera from hospital patients than in sera from a group of fifteen university graduates. (4) There is no relation between susceptibility to clinical poliomyelitis and absence of herpes antibody. (5) Herpes virus could not be demonstrated post mortem in the Gasserian ganglion of persons with high titre herpes antibody. (6) Aphthous stomatitis in infancy is the common manifestation of primary infection with herpes virus. (7) The epidemiology of herpes infections is briefly discussed in the light of these findings.

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HÆMOPTYSIS AND LUNG INFILTRATION CAUSED BY AVITAMINOSIS

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While treating a number of patients with citrin * for hæmorrhagic diathesis in the medical department of the Finsen Institute we observed a case in which the patient's main symptoms were a pulmonary affection with hæmoptysis and radiological changes in the lungs Under this treatment the tendency to hæmorrhage and the lung symptoms both receded.

CASE-RECORD

The patient, a woman aged 36, was admitted to the Finsen Institute on May 31, 1937. There was no tuberculosis in her family, and she had been healthy in childhood and youth, apart from a tendency to have bruises from slight trauma Her menses, from her 14th year, were always regular but weak, 2–3 days/4 weeks. During the previous ten years she took thyroid extract daily, for reduced metabolism, but she had not done so during the past year.

The present affection began in January, 1937, being manifested by cough, expectoration, hæmoptysis, swollen cervical glands, gingival hæmorrhage, and spontaneous ecchymoses and petechiæ, especially on the extremities; there were also poor appetite, pronounced lassitude, and functional dyspnœa, but no increase of temperature. This syndrome having aroused suspicion of pulmonary tuberculosis, the patient was examined in February, 1937, at the tuberculosis dispensary, where a radiogram revealed a large right hilus, for which reason she was kept in hospital from March 2 till April 3 for observation for pulmonary tuberculosis.

The Mantoux reaction was negative (0 01 mg —; 0 1 mg —), and culture after gastric lavage proved negative for tubercle bacilli Nothing abnormal was found in the urine. Examination of the blood gave the following results: sedimentation-rate 15 mm, hæmoglobin 91 per cent, red cells 5,020,000, colour-index 0 91, leucocytes 6100, and platelets 100,000 and 161,000. Radiography of the lungs on April 2 showed both hilar regions enlarged and blurred and the perihilar outline enlarged, especially on the right side. The patient had laboured respiration, and numerous râles were heard throughout the anterior and posterior surfaces of the lungs. There were many large ecchymoses on the lower extremities and infiltration of the subcutaneous tissue.

Since spontaneous ecchymoses continued to appear, she was treated with lime, lemons, and carbon arc light. There was some improvement, though the weight was still falling. She then insisted on being discharged. Since she continued to cough and her condition became worse, she was again examined at the dispensary, and radiography on May 21, 1937, revealed a massive shadow in the middle of the right lung area. The Mantoux reaction being negative and culture after gastric lavage showing no tubercle bacilli the lung change was interpreted as a tumour, and the patient was sent the same month to the Radium Hospital, where repeated examinations of her sputum were negative for tubercle bacilli, and the Mantoux reaction was negative (0·1 mg.—; 1 mg.—) Examination of the blood showed platelets 288,000, coagulation-time 2 min, and bleeding time 2½ min. Nothing abnormal was found on laryngoscopy and posterior rhinoscopy. Her temperature was normal.

A radiogram taken on May 30 (fig. 1A) revealed, as did the last radiogram before hospitalisation, a massive shadow in the middle of the right lung area, extending from the lateral wall to the hilar region The lower edge of the shadow was sharply defined, corresponding to the interlobular groove, whereas the upper edge was more blurred, the shadow merging with that of the lung

There being some petechiæ and ecchymoses over the sternum, antecubital fossæ, and legs, the patient, without being treated, was transferred to the medical department of the Finsen Institute Her chief symptoms on admission were cough, expectoration (occasionally blood-tinged), slight stitch in the right side, poor appetite, loss of weight (15 kg. during the past half-year), great tiredness, and ecchymoses

She was pale and thin, weighing 46 7 kg (height 155 cm.) Her teeth were defective, some with parodontitis; her oral mucosa and gingiva were normal, with no sign of bleeding; and she had cervical adenitis There was no dyspnœa or cyanosis, but respiration was somewhat laboured, almost stertorous There was dullness on percussion over the right anterior and posterior surfaces of the lungs as far as the third rib, with bronchial respiration and coarse râles There were a few petechiæ over the sternum and ecchymoses over both antecubital fossæ and a few on the thighs (When shortly after admission the patient was about to be radiographed, large ecchymoses appeared on the back of both thighs when she was placed on the table) Physical examination otherwise revealed nothing abnormal

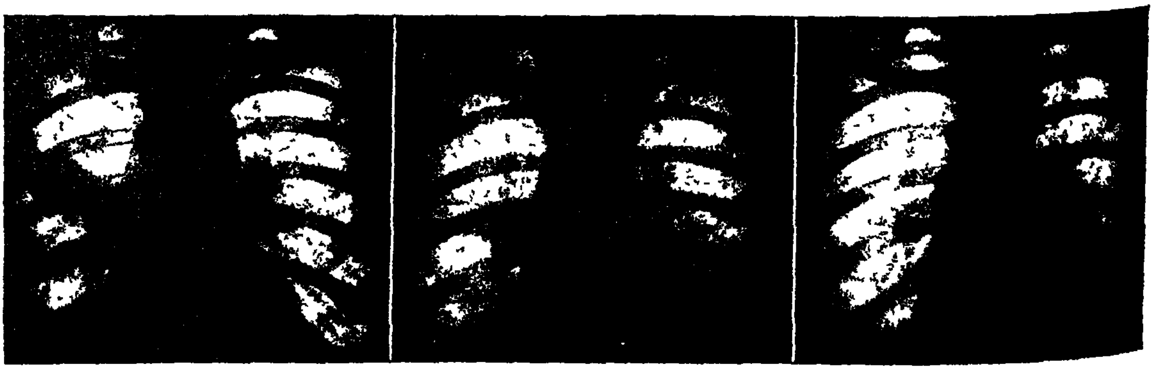
A (30 v.37) B (20 x 37) C (26 viii 38)

Fig. 1—Radiograms: A, showing massive shadow in the middle of the right lung area, extending from the lateral wall to the hilar region. On June 25 and July 26 the infiltration in the right lung was unchanged B, showing right lung much clearer, with only an interlobular pleural shadow and a slight density of the right hilar region C, showing both lungs apparently normal except for remains of the former interlobular pleural shadow in the right lung.

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* The citrin was kindly provided by Prof Szent-Györgyi and by the Ferrosan Company

The blood Wassermann reaction and the sero-reaction to *Bact tularense* were negative A blood-count gave the following results —

Red cells	4,500 000	Polymorphs	84 %
White cells	6900	Lymphocytes	10 %
Hæmoglobin	80 %	Monocytes	6 %
Colour index	0 9		
Platelets (eight examinations)	290,000–500,000		

The sedimentation rate was 21 mm (for the later examination see fig 2), bleeding-time (Duke), 2–3 min (six examinations), coagulation-time, 1–2 min (six examinations), plasma colour figure, 3–4, serum protein, 7 per cent (3 22 per cent albumin and 3 78 per cent globulin, relative albumin percentage 46) Formolgel reaction + 24 hours Takata ++

Direct examination of the sputum for the presence of tubercle bacilli proved negative on eight occasions, culture and inoculation of sputum also produced negative results Direct microscopy and cultivation proved negative for actinomyces The Mantoux test was negative (1 mg –) Capillary resistance was considerably lowered + 40 mm (suction method), Bexelius + (more than 100 petechiæ) (Jersild and Elmby 1938) Sternal puncture showed nothing abnormal There were no pathological components in the urine The basal metabolic rate was 120–105 Radiography of the lungs on June 25 and July 26, 1937, showed that the infiltration previously oticed in the right lung (fig 1A) was unchanged he temperature was normal throughout the period ı hospital

Treatment —The greatly lowered capillary resistance nd the tendency to spontaneous ecchymoses and etechiæ being manifestations of the hæmorrhagic iathesis, ascorbic acid was administered, 300 mg eing injected intravenously daily from June 20 o 29 No improvement was observed, fresh cchymoses and petechiæ constantly appeared, and he capillary resistance was unchanged June 18 + 60 mm, June 22 + 50 mm, July 1 + 35 mm)n June 23 there was hæmoptysis

Treatment with vitamin P was then begun, 50 mg f citrin being injected intravenously daily from uly 1 to Aug 4 During this treatment the ollowing capillary resistance values were found —

July 1 + at 35* mm Hg
„ 8 + „ 60 „
„ 10 + „ 85 „
„ 16 + „ 100 „
Aug 3 + „ 150† „

* Bexelius + (more than 100 petechiæ)
† Bexelius – (no petechiæ) (See also fig 2)

Simultaneously with the distinct improvement of the capillary resistance the ecchymoses and petechiæ disappeared (only insignificant ecchymoses after July 13 and none after the 29th) There was no cough or expectoration after the 17th, and the general condition improved, the appetite was better, and the patient began to put on weight (2 1 kg during the citrin treatment) On Aug 4 she was out of bed and quite well Menstruation began on Aug 19 after four months' amenorrhœa A radiogram taken on Aug 25 showed that the infiltration in the right lung was beginning to clear There was a slight dullness corresponding to the affected lung area, but no murmurs or definite respiratory changes were found The patient was discharged on the 28th, her weight being 49 5 kg, a total increase of 5 kg

Subsequent examinations —On Oct 20, 1937, she reported that she had had no ecchymoses since discharge felt well, did not expectorate, and had put on 4 kg in weight The radiogram (fig 1B) showed that the right lung was much clearer, with only an interlobular pleural shadow and a slight density of the right hilar region

On Aug 20, 1938, her general condition was good, her weight having increased from 53 3 to 64 2 kg She had no cough or expectoration Her menses were regular and normal in amount There was no sign of hæmorrhagic diathesis On auscultation the lungs appeared normal The radiogram (fig 1C) showed remains of the pleural shadow on the right side, otherwise both lung areas appeared normal

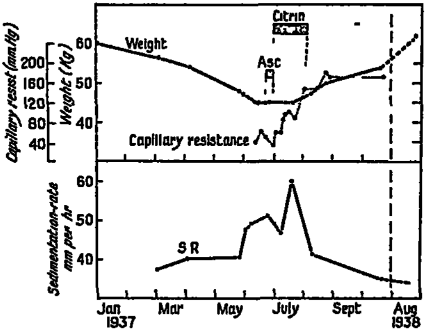

FIG 2—Graphs of weight, capillary resistance, and sedimentation rate, showing effect of treatment with citrin Asc =ascorbic acid

DISCUSSION

Presumably the only explanation of this case is hæmorrhage in the lung tissue, with hæmoptysis and radiological signs of infiltration I have previously reported (Jersild 1938) a case of hæmorrhagic diathesis (Schönlein Henoch purpura), in which there were hæmoptysis and radiological changes in the right lung In spite of careful examination at various tuberculosis dispensaries no pulmonary tuberculosis was found in this case either The present case emphasises the advisability of always testing the capillary resistance in cases of hæmoptysis in which no causal organism can be found It would also be of interest to investigate whether some of the hæmoptyses of tuberculous patients are not the result of a deficiency of vitamin P

SUMMARY

A woman of 36 had hæmoptysis, and X ray examination showed infiltration of the lung There was no other evidence of pulmonary tuberculosis, but she had had previous manifestations of the hæmorrhagic diathesis She was cured with citrin (vitamin P), the lung infiltration receding also

My acknowledgments are due to my chief, Dr Hecht Johansen, for permission to report this case

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" I was thinking to myself of the hopeless woe of the young mothers who never got an anæsthetic—for you can't call a rope to bear down with an anæsthetic—but were allowed to suffer on provided they were healthy, and this chiefly owing to the custom of their elders the 'auld ones' who had a child in agony thirty years ago perhaps, and so insisted that the young women should 'go through it' in their turn—man's inhumanity to Man is as nothing compared with the remorseless and relentless inhumanity of woman to woman or man for that matter, and the holiest women are the worst "
From "Tumbling in the Hay" by O St J GOGARTY, London 1939

FREE AND COMBINED ŒSTROGENS IN THE BLOOD DURING PREGNANCY

By O. Muhlbock, M.D., Ph.D.

(From the Pharmacotherapeutic Institute of the University of Amsterdam)

It has long been known that the major part of the œstrogenic hormones in the urine of pregnant women is eliminated in a combined form,[1 2 5–7] which is scarcely active œstrogenically when injected (Cohen and Marrian 1936) Hence in the determination of the total amount of hormones eliminated it is necessary to bring about first of all the conversion of these combined hormones into the free hormones by heating with acid (hydrolysis) (Cohen and Marrian 1935). It was also demonstrated eighteen months ago that part of the œstrogenic substances circulates in a combined form in the blood of pregnant mares (Mühlbock 1937).

It appeared important therefore to examine the blood of pregnant women, and this has now been done. Since we were not justified in taking the blood samples from healthy pregnant women, we have availed ourselves of retroplacental blood from healthy women in childbirth At the same time we have also examined the blood of women with pregnancy toxæmia, on whom venesection had been carried out on therapeutic grounds

The extraction was carried out according to the process worked out by Dingemanse (see Mühlbock 1937). The retroplacental blood was collected directly in the labour ward in a bottle containing alcohol; the alcohol was evaporated and the residue extracted directly by warming with benzene, first in the neutral state and then after addition of hydrochloric acid Standardisation was always carried out on castrated mice and compared with a standard preparation. Neutral extraction gives the free hormone; extraction after addition of acid gives the combined hormone. In order to check the completeness of the neutral extraction, the retroplacental blood was extracted a second time in the neutral condition: this second extract was not active œstrogenically. The results are collected together in the accompanying table, the international units given referring to 1 litre of blood or serum respectively.

Kind of blood		Free hormone (I U)	Combined hormone (I U.)	Total hormone (I U)	Percentage combined
Retroplacental blood	(1) .	1000	1000	2000	50
	(2) .	500	250	750	33
Pregnancy toxæmia serum	Case 1	250	100	350	29
	„ 2	500	400	900	44
Eclampsia post-partum	Case 3	100	50	150	33

It will be seen that in all the blood samples examined from pregnant women part of the œstrogenic hormone was present in a combined form; the combined part amounts to 30–50 per cent. based on the biological activity. Hence in order to obtain the total œstrogenic hormone content of the blood of pregnant women it is necessary to examine the blood after hydrolysis. In the investigations hitherto published this necessity has not been borne in mind.

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MEDICAL SOCIETIES

MEDICAL SOCIETY OF LONDON

At a meeting of this society on March 13, with Dr C E Lakin, the president, in the chair, a discussion on

Coronary Thrombosis

was opened by Dr. D. Evan Bedford. He said that the term was commonly employed to include all cases in which acute infarction of the heart was believed to be present, although in fact there might be no thrombosis but only an atheromatous stricture of the artery. Fuller understanding of the pathogenesis of anginal pain had only served to emphasise the essential unity of angina pectoris with coronary thrombosis *The pain was an expression of cardiac* ischæmia, the usual cause of which was coronary obstruction. Angina was the symptom of coronary *occlusion, and the two could not be sharply distinguished.* Statistics showed that 85 per cent. of all cases of coronary thrombosis were males, the sex-incidence becoming almost equal in advanced age The disease had always been common and the apparent recent increase in its incidence was probably due to its better recognition. The basis of coronary occlusion was atheromatous sclerosis or atheroma of unknown cause. Hypertension could not be regarded as causal, but it probably favoured the onset of a severe degree of atheroma. The general impression of clinicians was that the usual subject was a stocky, powerfully built person with a tendency to obesity This tendency was important, if only because it could be remedied. In Dr Bedford's opinion neither intellectual nor manual labour, but rather hard living and self-indulgence, predisposed to the disease. There was some evidence *that in temperate zones it was more frequent in the* winter, and there might be good reason for sending potential cases to winter in warmer climates The importance of heredity had been much exaggerated

The three common types were anterior, or right, infarct; posterior, or left, infarct; and lateral infarct from occlusion of the circumflex branch The clinical picture of the acute attack was well known Its *three cardinal features were anginal pain,* circulatory collapse and shock, and dyspnœa and heart failure Fever, leucocytosis and a raised sedimentation *rate were common Pain might be slight or absent* in a patient who already had some degree of cardiac insufficiency or failure Acute left-ventricular failure in a patient with normal or low blood-pressure and no signs of aortic disease should suggest coronary occlusion. The more gradual types of infarction were nearly always painless Another form of onset was syncope and collapse, followed by dyspnœa and œdema In the abdominal or pseudogastralgic type anginal or epigastric pain was associated with vomiting or distension Abdominal symptoms occurred in severe cases, but these patients gave ample evidence of cardiac weakness Of the complications, embolism was likely to occur in the first ten days, it might be pulmonary, systemic, or both Abnormal rhythm might occur in the first week, occasionally later About half the patients had auricular fibrillation, and about 14 per cent suffered from paroxysmal tachycardia or heart-block Cardiac aneurysm was found in 9 per cent of cases post mortem, nearly always at the site of an anterior infarct, so that the electrocardiogram was always of the T_1 type The T_3 type was associated with posterior infarction

Dr Bedford demonstrated the correlation of electrocardiographic readings with clinical and pathological data The differential diagnosis from gall-stones and gall bladder disease might be difficult, and in cases of doubt an electrocardiographic test should be made before operation The mortality from the acute type of coronary thrombosis did not exceed 30 per cent The chance of the patient's living two years after the attack was in his favour, but after that the odds against him increased until they were four to one against his living five years A patient whose heart was enlarged had only half as good a prognosis as one whose heart remained the normal size Morphia should be given in doses sufficient to relieve pain, and absolute rest and adequate nursing were imperative A low calorie diet was of real value—e g, 200 c cm of milk at four hourly intervals four times a day, supplemented by water Dr Bedford insisted on a complete fluid diet for at least a week, and regarded overfeeding in the early stages as a real danger Moderate doses of digitalis were needed in heart failure or auricular fibrillation Quinidine *might* be life saving in paroxysmal ventricular tachycardia Two months bed was the minimum safe period, and should e followed by three to six months' convalescence atients who made a good recovery should be restored o activity and work, idleness was deleterious rafting operations were on trial, and their merits ight well be explored in cases of syphilitic stenosis f the coronary ostium, which always became worse n spite of medical treatment

Dr C KEITH SIMPSON spoke from the angle of medicolegal pathologist, a type of worker who, he aid, saw an unusually large number of these cases fter death The clinician had only an indifferent nowledge of the vast numbers of persons who ropped dead of coronary disease without ever aving suffered or seen a doctor The pathologist hould not slit the vessel lengthwise but make epeated transverse cuts so close together that no art of the lumen escaped examination The records f his last 3000 autopsies showed 580 cases of death rom coronary disease, including 330 from coronary hrombosis The age incidence of coronary occlusion lone was about a decade higher than that of thrombosis The incidence was much greater in the left rtery, particularly in the descending branch, and ncreased with the physiological load Atheroma as not only a constant accompaniment of thrombosis, t was always present at or near the site Dr Simpson escribed the local factors and the mechanism by hich a laminated thrombus grew slowly, when t had almost completely blocked the lumen, a ed thrombus grew quickly down the lumen on the istal side If death took place before the red hrombus had formed, the keenest sight and the most perfect technique were required to detect every aminated clot The most important systemic factor was sleep, with its retardation of the flow in the coronary vessels In a large proportion of the cases death occurred in sleep or during a doze after a satisfying meal The precipitating retardation of circulation might, however, also be occasioned by a sudden alteration of flow, as in collapse from coronary occlusion, perforated ulcer, cerebral hæmorrhage or injury The reaction to mental excitement might be complicated by thrombosis, and debilitating disease might predispose, especially when accompanied by infection

Not a few persons lived to a natural old age after coronary thrombosis or even infarction An old infarct scar was found at one autopsy out of every thirty The immediate prognosis was, however, grave, 48 per cent of deaths occurring within forty-eight hours and 82 per cent of the remainder within a week One third of the patients with infarction who came to post mortem examination had died from rupture of the heart at the fourth or fifth day On the other hand patients might follow exhausting occupations for some days before collapsing Of the 93 cases of old infarct scarring, 82 had had no previous history and had never even complained of symptoms

In a large number of accidents involving injury, heart disease had in fact been the cause For example a workman had been found dead in a partly erected house with a number of collapsed props round him, but autopsy showed that he had died of ruptured infarct Cases in which trauma precipitated thrombosis were of three distinct kinds those in which there was direct injury of the chest, those in which thrombosis followed injury to another part of the body and collapse, and those in which thrombosis followed collapse which might be held due to mental shock *Action was sometimes unfortunately taken* on the slenderest evidence of a connexion between occupational strain or a slight injury and the development of coronary thrombosis, disablement and death Each case demanded the most careful examination and judgment on its own merits

DISCUSSION

Dr A HOPE GOSSE showed a number of electrocardiograms illustrating various types of coronary thrombosis One of these showed that the rhythm of auricular fibrillation under operation for removal of calcium from the pericardium had become normal five minutes after the formation of the window, but a premature contraction had occurred every time the surgeon touched the ventricle

Dr G E S WARD described a patient who had developed heart block two or three days after the thrombosis, it had lasted less than forty eight hours He asked whether this was a common experience, and what was the reason for the heart block He also asked the youngest age of incidence, and mentioned that he had seen that day an electrocardiogram typical of coronary thrombosis from a young man in the twenties who had had no pain

Dr F PARKES WEBER suggested that rumour, as reported by Tacitus, had been wrong in ascribing Nero's death to poison administered by the physician Xenophon summoned from Cos by the Empress Agrippina The real cause was more likely, he considered to have been coronary thrombosis

Dr C J BERKELEY WAY declared that, so far from the symptoms of acute coronary thrombosis being familiar to medical practitioners, most doctors had not yet become "coronary conscious" He had become so through a dramatic case he had seen ten years ago, and he now always went at once to any patient who complained of flatulent indigestion in the middle of the night Knowledge of the condition was taught freely in the schools, but had not yet reached the body of practitioners over forty-five years of age

Dr E **ADOLF SCHOTT** said that the best time to obtain the fully developed electrocardiographic record was twenty-four hours after the attack. Pathological conditions in the gall-bladder and lungs could set up a reflex action which would produce some of the characteristic electrocardiographic abnormalities Inversion of the T and P waves sometimes immediately followed an infarction of a small pulmonary vessel, and the appearances simulated those of posterior infarction. It might be reasonable to ask the pathologist, in cases where even with the best technique he obtained a negative picture, to look for small emboli in the further branches of the pulmonary artery

Dr. **JAMES MCDONNELL** said that in two cases of coronary thrombosis he had demarcated with a stethoscope what he described as a "dissed" or dead area, giving absolutely no sound at all, over the muscle affected by the infarction. He suggested that this might prove to be a useful sign

Dr. **WILLIAM EVANS** declared that the condition should be called cardiac infarction and not coronary thrombosis, first because of the frequent absence of *thrombosis and secondly because syphilitic infarction* was well known to occur without thrombosis It was necessary for the benefit of the student to distinguish between the angina of ischæmia and that of infarct Cardiologists were familiar with the patient who had a short history of attacks of angina pectoris of effort and who showed no clinical signs or symptoms of cardiac infarction but whose electrocardiogram followed its typical curve Differential diagnosis could not in future be considered definite without an electrocardiogram Stress might have an influence on the formation of atheroma He suggested six weeks rather than two months as a minimum rest period

Dr **ERIC GARDNER** said that in rupture of the left ventricle there was often evidence that the process had continued for some days Cold weather might precipitate the rupture, presumably by increasing the blood-pressure Weather conditions might adversely affect an infarction which would otherwise have cleared up and given rise to the extraordinarily thin scar which was sometimes seen at autopsy four or five years afterwards. He always gave half a grain of morphia to begin with and repeated it in half an hour if the pain had not subsided, giving a third injection also if necessary The results of this massive morphia treatment had been good. Indigestion and flatulence were constant forerunners of coronary thrombosis. The history was often first a flatulence which the patient treated with sodium bicarbonate; secondly what he called dyspepsia and treated with a MacLean powder; and thirdly a final attack of dyspepsia which came to the consulting-room as coronary thrombosis.

Dr. **BEDFORD**, in reply, said that the first electrocardiogram was best taken on the fourth, fifth or sixth day. The physician must advise what he thought was safe, not tell the patient how foolish he might be with impunity.

Dr **SIMPSON**, also in reply, said that he had known a few cases under 30 and that cases between 30 and 35 were not uncommon in men, but that he had never seen one under 40 in a woman.

ROYAL SOCIETY OF MEDICINE

SECTION OF PROCTOLOGY

AT a meeting of this section held on March 8, with Mr. J. P. **LOCKHART-MUMMERY** in the chair, a discussion on

Megacolon

was opened by Prof. E D **TELFORD** He classified these cases tentatively into congenital and adult types; inheritance was probably not the whole explanation of the adult types because in children the condition was commoner among boys (about 3 to 1) whereas women predominated among adult patients, in whom such factors as bands, kinks, and valvular obstruction might play a part. Prof. Telford had performed lumbar-cord ganglionectomy on 2 men and 4 women with only temporary benefit, and the same operation on 6 young women with constipation and a large ptosed colon had given disappointing results

He proposed to discuss mainly the *congenital* megacolon of childhood Control of the mechanism of peristalsis by the autonomic system was probably not complete because smooth muscle deprived of nerve impulses was still capable of action; the conception of the sympathetic as the "filler" nerve and of the parasympathetic as the complementary "emptying" nerve was too simple because there was evidence that nerve influence varies with the state of a viscus at any given time. However, clinical, experimental, and postoperative evidence supported the view that megacolon results from autonomic imbalance producing achalasia with resultant colonic dilatation. In his view the site of achalasia was more often at the pelvi-rectal junction than at the anal sphincter, but the mechanism of achalasia was not clear Overwork and distension of the bowel were associated with hypertrophy and fibrosis, which affected adversely the prognosis of operations on the nerve supply. If at operation a brisk response was obtained on light pinching of the bowel with dissecting forceps a good result might be expected According to Finney the plexuses of Meissner and Auerbach were histologically normal in megacolon. In diagnosis constipation was the outstanding symptom, but certain cases of what might be called "retention colitis" had diarrhœa with 5–6 small liquid motions a day. Children with megacolon were undersized, thin, sallow and very lethargic: the anæmia, loss of weight, distension and soft palpable masses in the abdomen might simulate tuberculous peritonitis The diagnosis was easily made by a radiogram after a barium enema or meal, but this was a measure only of distensibility, function was more important

While minor cases might be kept well by constant medical supervision, operative treatment was indicated in the more severe cases requiring repeated enemata and going backward in health and energy In children sympathectomy had now replaced short circuits and resections. The point at which the sympathetic supply was best interrupted must be considered in relation to the anatomy of the sympathetic supply to the left side of the colon, which was affected in over 70 per cent of cases Operation must be bilateral, the colon being an organ of medial development, and Prof. Telford explained his reasons for practising bilateral division of the lumbar splanchnics by a transperitoneal approach; to avoid regeneration it was probably better to remove the portion of ganglionated cord, say L.1 and L.2, from which the lumbar splanchnics arose. Bilateral section of the white ramus of the first lumbar nerve was too formidable, and interference at the point of origin of the inferior mesenteric artery was liable to cause sexual disability in boys and the destruction of parasympathetic fibres. His own results from division of the lumbar splanchnics showed that of 5 boys and 4 girls, aged 4–16 years at operation between 1932–36, 6 were in excellent condition, being well grown and requiring no purgatives, 2 were partially cured, requiring a mild laxative or liquid paraffin once or twice a week, and 1 was a complete failure; the last was a mental defective with bad home surroundings. A boy aged 8 who was sallow and lethargic on admission, and attended hospital for periods of three months to unload the bowel, eventually had a section of the lumbar sympathetic cords; since 1932 he had not required purgatives and now played football. Prof. Telford demonstrated radiograms of the effect of operation: the pelvic colon, seen as a massive lump on the right side of the abdomen, was in its proper position 3 months after operation, where it remained 2½ years later, although still enlarged.

Since Merle Scott and his co-workers had reported that patients given spinal anæsthesia for diagnostic and prognostic purposes had been "practically completely cured" without operation, Prof. Telford had tried this method between January and July, 1938, on 4 cases of advanced severe megacolon and these had remained quite well up to the present. Decicaine had been used, with level of anæsthesia up to T 3. A boy aged 12, whose period between bowel actions had previously been 2–3 weeks, had not required purgatives since treatment in January, 1938, and was now actively engaged in sports, particularly swimming. A year after treatment the pelvic colon was still dilated but functioning perfectly. It was hardly justifiable to report results before the lapse of 2 years but the method merited further trial.

Sir LANCELOT BARRINGTON-WARD described his experiences with *congenital* megacolon. Earlier results with colectomy had usually been disappointing although he had evidence of symptomatic cure of 2 boys, aged 3 and 8, on whom the operation had been performed in 1913 and 1928 respectively. He had achieved consistently satisfactory results only since attacking the sympathetic supply of the colon. More than two-thirds of his cases had been operated upon more than 3 years ago: of the total of 31 cases (21 males) aged between 5 months and 12 years, 24 were alive and well and 7 were dead. Since presacral sympathectomy (excision of the presacral nerves and inferior mesenteric ganglion) might cause sterility in males he had limited it to females, later giving it up altogether because his results by abdominal ganglionectomy (2nd, 3rd, and 4th ganglia) were better. There had been no selection of cases—many were severe and 3 were aged 6 months or under; medical measures were exhausted before operation. The only mortality had been with presacral sympathectomy: 2 died of the operation, from pulmonary collapse and pneumonia, and 5 died 3 months to 1 year later after a second operation for volvulus or obstruction. The 24 patients had all been well for 3 years or more after operation. The return of good function was the most certain expectation (the bowels mostly moving daily without purgatives) although in some cases 2–3 weeks might elapse before such regularity was established. Abdominal distension took longer to improve owing to fibrosis; the condition was arrested rather than cured, and the younger the child and the less the deformity the better the result. The danger of volvulus was an anxiety, and relapse during the early postoperative months was not uncommon. During the first few months a daily action of the bowels might be ensured by a small dose of senna and paraffin or if necessary a small enema. That heredity played a part was suggested from the fact that 1 girl had an aunt who died from the disease, and that 2 patients were brothers with a third younger brother awaiting operation. In infants the disease was limited to the hind gut; the fact that dilatation of the rest of the colon was secondary made it unnecessary, in his opinion, to divide the sympathetic supply on the right side. Sir Lancelot referred to an infant, aged 6 months, with extreme constipation and abdominal distension, who had remained at his birth-weight of 8 lb., and had subsisted for 3 weeks on subcutaneous saline before abdominal sympathectomy; within a month he had put on 2 lb. and thereafter progressed more or less normally.

Prof. J. PATERSON ROSS said that at the surgical professorial unit at St. Bartholomew's Hospital they had treated 6 cases of infantile megacolon by sympathectomy. Surgery was performed only after failure of thorough conservative treatment in cases dating from early infancy with considerable dilatation *of the colon. Evidence of neuromuscular defect* in bladder or ureters was an additional indication. A barium enema (by showing the degree of distension which caused no discomfort) and spinal anæsthesia were valuable aids in the selection of cases. Operation should not be delayed after the age of 5–6 years because only in young children was the normal bowel calibre likely to be restored. He thought that the condition might perhaps be due to a gap between the vagal and sacral supplies, thus allowing sympathetic predominance in a limited portion of bowel; dilatation of the colon was unlike that produced by mechanical obstruction. He might in future try a radical splanchnic neurectomy (division of the 3 thoracic splanchnic nerves and excision of the upper 2 lumbar ganglia by extraperitoneal approach) which gave the greatest chance of cure and was without apparent ill effect on other viscera, excepting the seminal vesicles; the choice lay between trying to cure the disorder and preserving the power of procreation. When the sigmoid alone was affected lumbar splanchnic resection might be satisfactory.

Sir ARTHUR HURST had records of 11 cases in children (9 were boys) and 38 adult cases (20 were males). He did not believe that there was a pelvi-rectal sphincter (a sigmoidoscope passed easily in children and there was no narrowing) and he thought that in megacolon the anal sphincter failed to open normally on contraction of the rectum. Cameron (2 cases), Edsall (8) and Roberts had reported fibrosis of Auerbach's plexus. Toxic symptoms occurred only in children and adults taking aperients, which should not therefore be given. Radiologically the pelvic colon was seen on the left or right side underneath the diaphragm; a radiogram was shown with a bilateral gas-containing cavity. His cases, which were less severe than some of those mentioned earlier, had been satisfactorily treated by dilatation of the *sphincter ani with a bougie for ½ hour each morning* at first, the frequency gradually being reduced to once every 3 months. Volvulus had occurred in several long-standing cases.

Mr. J. B. OLDHAM had treated 7 cases of megacolon, 2 of which had been operated upon over 10 years ago. One (followed up since 1919) after initial acute intestinal obstruction, was readmitted continuously for bowel resections and dilatation of the anal sphincter: a bilateral extraperitoneal lumbar ganglionectomy was performed in 1928 and the patient, now 24, was perfectly well, in fact vivacious, and the mother of two children He considered this form of operation to be the best and safest, and that resection of the inferior mesenteric plexus and presacral nerve and transperitoneal operation should be given up He recalled a case which improved temporarily after spinal anæsthesia (in 1926) but operation was ultimately necessary: however, in view of Prof. Telford's remarks he would try the method again.

Sir **Charles Gordon-Watson** had resected the pelvic colon in 3 cases with satisfactory results: one was a woman aged 40 who had been pot-bellied since childhood and subsequently married

Prof **Telford**, in reply, suggested that spinal anæsthesia might bring the two halves of the system "into step" again by the shock, the converse effect being illustrated by a case of mega-œsophagus in a patient who had been quite well before dental shock. He referred to an unpublished case of mega-œsophagus which he had treated with spinal anæsthesia in July, 1938 The patient took the common hospital diet on the day following the anæsthetic, there had been no dysphagia since, and he had returned to work.

LIVERPOOL MEDICAL INSTITUTION AND THE MANCHESTER MEDICAL SOCIETY

At a meeting of these societies held at Liverpool on March 2, with Dr **William Johnson**, president of the Liverpool Medical Institution, in the chair, Mr. H. T. **Simmons** (Manchester) read a paper on

Congenital Megacolon and its Treatment

The condition, he said, was a congenital high-grade dilatation of the colon with thickening of the coats, especially the muscular layer Although there was retention of large quantities of fæcal matter there was no obstruction to the lumen of the bowel and no evidence of the formation of any sphincter. The pelvic colon was the main site of the disease in some 70 per cent of cases Microscopic examination showed hypertrophy and chronic inflammation, and although Cameron had stated that Auerbach's plexus was degenerated, this had been denied by many subsequent observers Until recently the operation of Telford and Stopford had been the best method of treatment, but in the last twelve months a high spinal anæsthetic without any other measures had given good results. This appeared to provide strong evidence in favour of congenital megacolon being a true achalasia, and if the value of this treatment proved to be permanent it was a distinct step forward in treatment, since sympathectomy in young children was a major operation.

Mr. J. B **Oldham** said that he had treated 7 cases of Hirschsprung's disease by lumbar sympathectomy, 2 of them over ten years ago. He did not anticipate that spinal anæsthesia would be universally successful.

Dr. R. **Ellis** (Manchester) read a short paper on

P.M. Findings in Cardiovascular Disease

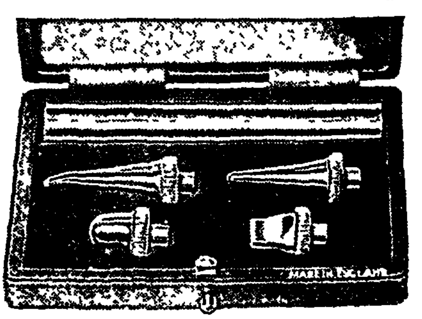
Of the 50 cases in his series 37 were males and 13 females, with ages ranging from 10 weeks to 70 years; the average age of the males was 56, and of the females 51 years. Disease of the coronary arteries was responsible for 31 of these deaths, in 17 of which there was demonstrable arterial occlusion; 11 of these 17 died within a few minutes and the longest recorded interval was four hours after the onset of symptoms. Of the 14 cases where coronary disease was apparent, but no obstruction was found, a larger proportion died in bed Thus, of 31 cases of coronary artery disease 17 had demonstrable obstruction, 20 died very rapidly, and in the remaining 11 death occurred within a few hours of the onset of symptoms. In 5 cases there had been previous cardiac infarction Complications found with non-obstructive atheroma included dissection aneurysm of the aorta, ruptured aorta and a ruptured coronary artery. In 2 cases of coronary occlusion the left ventricle was ruptured.

Other lesions found in this series included 4 cases of syphilitic aortitis, 1 with a ruptured aneurysm; 5 of fatty infiltration of the myocardium, 3 each of mitral stenosis and infective endocarditis, 2 of obliterative pericarditis; 1 of congenital defect of two aortic cusps, and 1 of large pulmonary embolus secondary to peripheral thrombophlebitis

NEW INVENTIONS

THE "FIRLE" EYE-MAGNET

The magnet is a well-established instrument for the removal of iron or steel foreign bodies from within the eye, but few surgeons use a magnet for superficial foreign bodies, probably because it is quicker to use a spud than prepare an electro magnet, and until now ordinary magnets have been too weak for effective use. Now Messrs. Gowllands of Croydon have manufactured an effective hand magnet which should be of much service to ophthalmic surgeons working in districts where iron and steel works are numerous and foreign bodies in the eyes of workmen common



This magnet is a cylindrical steel bar 4 in. long and ½ in. in diameter, weighing 4½ oz It is made of a steel alloy with high cobalt content and has a lower density and a much greater lifting force than the old carbon-steel magnets It does not suffer from ageing, and is stable at fairly high temperatures and under ordinary mechanical shock It is also stated to be very resistant to artificial ageing by external magnetic fields such as direct current apparatus or lightning Its lifting power is amazing: a 1 lb weight from the kitchen scales was lifted and held with ease One pole of the magnet is drilled to receive interchangeable pole pieces with probe ends, of these there are four The whole is chromium plated The pole pieces may be boiled, but the magnet is better sterilised by soaking in alcohol or 5 per cent. carbolic solution.

The instrument was supplied to me by Messrs. George Spiller Ltd, of 32, Wigmore Street, London. W.1.

N. **Bishop Harman**, M.B. Camb, F.R C S,
Consulting Ophthalmic Surgeon to the West London Hospital

THE AIR-RAID

A series of articles on medical organisation and surgical practice in air attack by
P. H MITCHINER, C B E, T D, F R C S, *and* E M COWELL, D S O, T.D, F R C S

XI—WOUNDS OF HEAD, SPINE, AND PERIPHERAL NERVES

IT is the rule in general surgery to excise and suture all wounds, and nowhere is this rule so essential and successful as in the treatment of all wounds of the head and spine It is true that in many cases damage to the central nervous system produces lasting and irreparable results, but relief of much suffering, limitation and amelioration of paralyses, and prevention of sepsis can be achieved by prompt excision and primary suture in all cases of wounds of the head and spine *It is common knowledge that* patients suffering from both these classes of wounds stand transport badly, hence either they should be conveyed direct to the base hospitals for treatment or if they are operated on at a casualty hospital they must be retained there for at least ten days

Head Injuries

Both clinically and pathologically head injuries fall into three great classes —

(1) Those with no external wound—e g, concussion, fissured *fractures of the cranial vault or* base

(2) Those with an external penetrating wound, rapid pulse, usually unconsciousness, and an early onset of diffuse sepsis—a type generally fatal

(3) Those with an open wound with or without extensive damage to the skull (depressed fracture) and underlying brain, these patients are generally conscious, with a slow full pulse, and sepsis tends to be localised—this type usually recovers, especially if operation is undertaken early

These types will now be dealt with seriatim, but it must be realised that they may coexist, and moreover that in about 30 per cent of such cases further wounds may be met with elsewhere in the body The wearing of "tin hats" has considerably reduced the number of minor head wounds, but it is obvious that such a hat affords little protection from "H E" or *falling masonry* and may indeed aggravate the wound by being driven into the skull.

CONCUSSION AND FISSURED FRACTURE OF THE SKULL

The signs and symptoms of concussion, accompanying fissured fractures, vary much in intensity according to the force of the injury and differ in no way from those seen in civil practice As a general rule in war the concussion is severe, in contradistinction to those cases in which extensive skull wounds are present and the patient seldom complains of more than a localised headache in the early stages Concussed patients are seldom so deeply unconscious that they will not swallow if food is placed in the mouth or drink slowly administered, and they may respond if spoken to slowly and loudly Retention of urine is common, and a full bladder often produces restlessness and attempts to rise from bed—for the purpose of emptying the bladder These signs may be mistaken for cerebral irritation and lead to the administration of morphine, when all that is necessary or advisable to quieten the patient is to give him a urinal and aid him to pass water Similarly, anal sphincter control and constipation often cause discomfort and restlessness, which may be satisfactorily relieved by a glycerin suppository and a bedpan Loss of sphincter control, slow snoring breathing, and a *rapid running pulse are the signs of cerebral* compression usually due to diffuse meningitis, in the early stages the pulse may be slow and full, in which event an intracranial hæmorrhage is to be suspected

Treatment of concussion—In all such cases the patient must be kept as still and quiet as possible and external irritation avoided, bowels and bladder need attention, and most of these patients swallow automatically if fluids are gently run into their mouths Dentures must always be removed immediately and should be placed in one of the patient's pockets If there is great restlessness morphine sulphate gr ⅛–¼ or hyoscine hydrobromide gr 1/100 may be given hypodermically These patients need a great deal of careful watching and nursing and, unless some complication, such as intracranial hæmorrhage, is suspected, are best evacuated direct to a base hospital.

Fracture of the skull often complicates these cases but is unimportant in itself compared with the concussion resulting from the cerebral damage, though it increases the risk of subsequent meningitis by infection from the nose, nasopharynx, or ear Bleeding from the ear is an indication to clean the external meatus gently and to plug it lightly with clean wool Similar treatment should be given in cases of bleeding from the anterior nares When blood is swallowed it is generally subsequently vomited as clots or "coffee grounds," and in all cases of fractured base involving the middle fossa with bleeding from the posterior nares or nasopharynx the head must be turned to one side and orderlies warned to keep a sharp eye on the patient lest he choke himself when vomiting It must be borne in mind that a patient may be concussed and vomit blood from a coexistent wound of the stomach

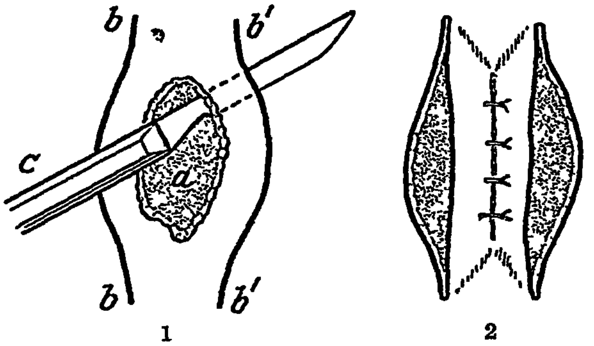
Intracranial hæmorrhage is more likely to cause cerebral compression in cases of fissured fracture and concussion due to "blast" than in cases in which *extensive skull defects allow* the blood to escape externally The blood usually comes from torn pia arachnoid vessels and is intradural and diffused over the surface of the brain, but rupture of the anterior branch of the middle meningeal artery due to a blow on the temple will produce an extradural hæmorrhage

Intradural hæmorrhage usually occurs rapidly and, coming on in a concussed patient, may escape notice unless the patient is carefully watched A deepening of unconsciousness, with flaccid paralysis of limb and loss of sphincter control, often accompanied by snoring respiration, with sagging cheeks, and even Cheyne Stokes breathing in severe cases (which is of grave prognostic significance), together with a slow full pulse, which later becomes rapid, running, and irregular, are all signs of the onset of compression Lumbar puncture will show blood in considerable quantity in the cerebrospinal fluid It is not advisable in these cases to attempt any operation to relieve the pressure, for the delicate veins only bleed afresh and more freely Lumbar puncture may be used for this purpose but is liable to cause fresh bleeding unless used with great caution Probably the best line of treatment is the intravenous injection of 10 c cm of a 30 per cent sterile saline solution to produce dehydration or a fall in pressure, but the prognosis is poor, and a fatal result is generally to be expected.

Extradural hæmorrhage results from a sharp blow or wound fracture on the side of the skull and causes a slow bleeding from the torn middle meningeal artery on the outer surface of the dura mater. Concussion may be present but often is very slight, and the patient appears normal (lucid interval), after which facial tingling and twitching may be noticed on the side opposite the skull lesion. This passes to paralysis at the same time as the arm shows similar signs of irritation, which in their turn pass to palsy as the leg becomes firstly irritated and later paralysed. In the meantime the patient becomes drowsy and ultimately unconscious Treatment consists in making a flap or vertical incision above the ear and detaching or splitting the temporal muscle; the trephine is then used, the pin being placed on the bone 1½ in. behind and above the external angular process of the orbit, and a circle of bone is removed, whereupon clot exudes This clot is cleared, the opening being enlarged as necessary, usually in a downward direction, to expose the canal in which the artery lies in the parietal bone, at which spot it is generally torn, and the hæmorrhage is arrested either by plugging or crushing the canal or ligaturing the vessel. The results of this operation are disappointing, and many patients die, for there are often accompanying intradural bleeding and severe damage to the brain

SCALP WOUNDS AND PENETRATING LESIONS OF THE SKULL AND BRAIN

Scalp wounds may be gutters, clean cuts, two separate wounds, or lacerated wounds. They all bleed very freely. In all cases hæmostasis must be secured after the scalp has been shaved for at least 3 in. from the edges of the wound Hæmostasis is best secured by local infiltration of the scalp with Barker's solution or a ½–2 per cent solution of procain hydrochloride to which a 1 in 1000 solution of adrenaline has been added in the proportion of 15 minims to 100 c cm. Alternatively a piece of rubber tubing or a Kocher all-metal tourniquet may be applied round the head The edges of the wound are then cleanly excised, and the skull is carefully explored for evidence of any fissure or other bone injury—damage will be detected in a large proportion of these cases and must be dealt with as will be described later. The edges of the wound are then firmly sutured, if this can be done without undue tension, and it is wise to use mattress sutures so as to secure hæmostasis.



Sargent's method of closure of scalp wound. 1. Formation of pedicled flaps. (*a*) area to be covered; (*b*) and (*b′*) two counter-incisions through half the thickness of the scalp; (*c*) scalpel cutting flap 2. Suture of flaps over original wound

Drainage is not advisable and should never be used, even when damage to brain or bone has been repaired.

In some extensive wounds of the cranial vault it is impossible to cover the wound by ordinary skin suture after the necessary excision and removal of fragments of bone. Some covering must be provided; otherwise sepsis is inevitable The method of closure in these cases, which was devised by Sargent, is ingenious and useful Two counter incisions are carried through half the thickness of the scalp outside the wound area The superficial half of the scalp between the wound and each counter incision is raised as a pedicled flap on each side (fig. 1) The two pedicled flaps are then approximated and held in position by a few sutures, leaving two crescentic raw areas on either side of the original wound, consisting of the deeper half of the scalp only (stippled in fig. 2). The scalp is so vascular that little trouble is experienced in healing, and the raw areas rapidly epithelialise.

Perforating wounds of the skull and brain result from high-velocity bullets, in which event they are usually through and through, or from small fragments or sharp splinters of bomb or shell casing, when often there is only one wound and the missile is retained in the cranial cavity. Owing to the severe disintegration of the brain resulting from the force of these missiles, the prognosis in these cases is very grave, most of them proving fatal, so that in a rush of wounded no undue time should be wasted in operating on such patients at the expense of delay to other patients with a better prognosis Such patients are usually unconscious owing to increased intracranial pressure from hæmorrhage, traumatic œdema of the brain, and, later, septic meningitis, the small size of the wounds and their blockage with debris preventing the escape of contents Often the ventricles are penetrated, usually shown by very high temperature. The escape of cerebrospinal fluid from the wounds is rarely seen, but lumbar puncture yields only a few drops of fluid, often blood-stained; such cases are nearly always fatal, and no time should be wasted on them by the surgeon. In all cases the whole scalp should be shaved; otherwise a small wound of entry may escape notice The wound of exit may show starring and eversion with extrusion of shreds of brain, bone, and muscle

Bruising of the skull—A bullet may run round the skull without damaging the bone but causing concussion and severe damage to the brain from its impact. In these cases it is usually safer to perform a craniotomy if the patient continues unconscious after a few hours, or if there is a subpericranial hæmatoma, especially if the patient complains of persistent localised headache in its vicinity. Treatment consists in excision of the wound, removal of all loose fragments of bone, and careful trimming of the bone edges with a craniotomy forceps If the dura mater is intact—which is unlikely—it is best left unopened (Sargent) unless it is bulging or not pulsating, when it should be explored through a crucial incision and stitched up after operation If the dura mater is perforated—which is usual—bone must be removed to leave two inches of undamaged dura exposed round the wound, the edges of the dura being then excised and any obviously damaged brain gently curetted or sucked away along the course of the wound track Pieces of depressed bone and clothing must be carefully sought for and removed with the greatest gentleness, and if the projectile is found in situ during this gentle cleansing it also must be picked out. No prolonged search must be made for deeply buried or distant fragments, which often cause no trouble or, at the worst, localised sepsis (brain abscess) and can be removed later, if necessary, after radiography. Moreover, search both damages the brain unnecessarily and spreads sepsis. The dura is closed if necessary by a graft and the skin wound sutured without drainage. (Details of the operation are given below.)

Radiography and time of operation.—Some surgeons advocate the routine radiography of all these cases to localise the missile before operation, but this is not feasible if there is a rush of wounded, and much valuable time may be wasted. It is essential that, if sepsis is to be prevented, operation shall be undertaken at the earliest possible moment.

Wounds of venous sinuses.—Intracranial hæmorrhage may result from wounds of the large venous sinuses, which may be perforated by small fragments. Large wounds are rapidly fatal. The superior longitudinal sinus is not so likely to be wounded when a "tin hat" is worn. The clinical signs are very characteristic and consist of a local wound near the vertex, which usually oozes blood freely, and a symmetrical and more or less complete spastic diplegia of both lower limbs. The sigmoid sinus is less often affected and leads to signs of cerebellar ataxy on the same side together with nystagmus. Treatment consists in craniotomy alongside the wound, the superficial part of which is excised in the scalp incision. The undamaged dura mater is opened, blood evacuated, and the sinus wound or wounds closed. Very small wounds can be closed by suture of a fragment of muscle over the holes. Larger wounds can be closed by the application of fascia (fascia lata is best), which adheres readily but is better stretched in situ. Plugging should be avoided at all costs. The damaged dura is then excised and closed, if necessary by a fascial graft, and the skin wound sutured without drainage.

DEPRESSED FRACTURES

Depressed fractures of the skull are the commonest injury seen as a result of wounds. They are always compound and associated with severe laceration of the scalp. Since they commonly result from bomb or shrapnel bursting near by, other wounds are usually present, often involving the face and jaws. The mortality in such cases is bound to be heavy. Operation must be prompt if it is to prevent the onset of sepsis, but it must be realised that sepsis is often localised by definite but delicate adhesions of the pia arachnoid to the dura mater, and where localised sepsis is present great care must be taken not to disturb these easily broken down adhesions, otherwise generalised meningitis and death will follow.

Fungus (hernia) cerebri.—Damage to the brain is rapidly followed by an acute spreading œdema, the softened and disintegrated brain tissue acting as a foreign body, and depressed fragments of bone by their pressure seriously interfering with the cerebral circulation and thus aggravating the condition. This œdema and the raised intracranial pressure cause the dead brain tissue to be extruded through the wound as a fungus (hernia) cerebri. This condition is further aggravated and increased by the raised pressure due to local sepsis (abscess) subjacent to the wound, by generalised meningitis, or by intracranial hæmorrhage secondary to these. This hernia consists of dead brain tissue and granulations and can be removed with impunity to expose adequately and deal with the underlying sepsis.

Clinical signs of depressed fracture.—A scalp wound is always present, usually lacerating, with obvious bone damage in its depths. Rarely, however, the outer table may show bruising only (subpericranial hæmatoma), when the inner table, always more extensively broken up (as is seen when a blow is struck, on the outer surface of a glazed earthenware teapot), is likely to be fractured and the underlying brain thereby damaged. It is most unusual for these cases to show any signs of concussion, owing to the opening allowing of escape of contents and no rise in intracranial pressure, but occasionally concussion may be present in a mild degree when the dura mater is intact. In many patients there are no cerebral signs save a slight headache, but in others paralyses of limbs and anæsthesia will be met with as a result, in most cases, of circulatory disturbances due to the pressure of indriven fragments of bone—a clear indication of the urgent necessity for prompt operation. In such patients immediate relief follows craniotomy and relief of pressure, but no such happy result is to be anticipated when brain centres have been destroyed. Since, however, no prognosis can be given as to how much recovery will follow operation, this must be undertaken promptly in all these cases.

Treatment.—The whole scalp must be shaved and cleaned and the area round the wound, and wide of it, infiltrated with a ½ per cent. solution of novocain solution to which has been added a 1 in 1000 solution of adrenaline in the proportion of 15 minims to 100 c.cm. to produce hæmostasis and anæsthesia. In these patients, who are usually conscious, gas-and-oxygen anæsthesia is advisable in addition. The edges of the wound are then cleanly excised and, according to the underlying bone damage, extended into a triradiate incision or left in the centre of a reflected flap of scalp. The underlying skull damage is now carefully examined, all loose and depressed fragments of bone are removed, and the edges of the skull are smoothed down with a craniotomy forceps, care being taken to expose and remove any fragments of the inner table which may be lying under intact outer table (such fragments are often present and must be looked for). The dura mater is then carefully examined for tears.

At operation one of two conditions will be found: (1) the dura mater will be intact, or (2) the dura will be opened, and brain tissue may be extruded.

(1) With regard to cases with intact dura there are two opposed schools of surgery. Harvey Cushing urges that the dura should be opened in all cases, for by this means alone can one learn if and to what extent the underlying brain is damaged. On the other hand, Sargent and Holmes, who had great experience of these cases in the late war, urge most strongly that an intact dura should not be opened, because of the fear of introducing sepsis into the brain. Our own practice, and that of many surgeons in the late war, is to leave the dura if it appears normal and is not unduly tense or bluish, but, if these signs are present or pulsation is absent, it should be opened by a cruciate incision. Before this incision is made, bone must be removed to expose at least an inch of normal dura *round the tense, bluish, or* pulseless area, which is then opened in a cruciate manner, underlying clot or dead-white and softened brain tissue being removed by gentle suction or, if this is not possible, by curettage with a blunt spoon. The dura is then carefully closed with catgut sutures and the scalp wound closed with mattress sutures *without drainage*. It is surprising how readily large deficiencies of scalp will be obliterated, if the triradiate incision is used; and here, owing to the vascularity of the tissues, it is permissible to close under more tension than elsewhere in the body.

(2) When the dura is lacerated, it is well, if it can be done without losing time, to have had the patient radiographed, before being brought to the theatre, to ascertain if a missile is present and to localise it as far as possible; but no undue time should be wasted on this examination, for it is essential to operate quickly on such cases so as to minimise the risk of sepsis and permanent paralysis. At least two inches of healthy dura must be exposed round the wound, bone being clipped away with a craniotomy forceps for this purpose. All torn edges of dura and protruding brain fragments must be cut away and any embedded bone fragments, cloth, or projectile picked out. The adjacent brain tissue will be found softened and dead-white and can with advantage be explored gently by and sucked out through a rubber catheter. The missile will have penetrated deeper than any bone fragments or foreign bodies carried in, and it may be felt by the catheter or probe and can then be picked out with a curette, which does less damage than forceps. Some surgeons recommend exploration with a finger, but this is liable to damage brain tissue and spread sepsis and is not to be lightly undertaken. The dura is then closed; usually a fascial graft (fascia lata) is necessary to achieve this, but simple suture may suffice. The scalp wound is closed without drainage.

Craniotomy.—Radiography to ascertain the presence of a missile and to localise it, if possible, should be undertaken before operation. Craniotomy should be performed promptly in all cases of extradural hæmorrhage, depressed fractures, and penetrating wounds when there is hope of the patient's survival—i.e., when the pulse is still slow and full and Cheyne-Stokes respiration has not become established. In all cases the entire scalp must be shaved, the area round any wound or wounds infiltrated with Barker's solution (or a $\frac{1}{2}$–2 per cent. solution of novocain solution in normal saline, with 15 minims of a 1 in 1000 solution of adrenaline added to each 100 c.cm.), and the edges of the scalp wound excised. It is generally most expedient to extend this by triradiate incisions, for it facilitates subsequent suture while giving as good an exposure of the skull as turning down a flap round the wound. The skull is examined to ascertain the extent of bone damage, and the loose and indriven fragments of bone are removed and the bone edges smoothed and further removed, if necessary, with craniotomy forceps. When no bone wound exists, as in extradural hæmorrhage, the skull will be opened by a 1 in trephine appropriately placed (see above)—in the case of a small bone wound on sound skull alongside the puncture. Some surgeons prefer to raise a bone flap including the bone deficiency, but this is difficult except for the skilled cerebral surgeon and may waste much time. The dura mater is then examined. If it is undamaged it may be opened if necessary. If it is damaged, bone is removed to expose two inches of healthy dura round the wound, the edges of which are then excised. A cruciate opening is next made in the membrane. Extruded brain is snipped away and any obvious bone fragments, foreign bodies, or missiles removed. Harvey Cushing recommends the gentle insertion of a no. 10 soft rubber catheter along the wound track, when hard foreign bodies can be detected by touch with minimal damage to brain tissue, and, if a glass syringe is attached to the outer end of the catheter, the white pulped brain tissue round the track can be sucked up through it, whereas normal brain tissue cannot. Hard objects may possibly be extracted thus, but this rarely happens; they can usually be seen and gently extracted with a blunt curette, inserted alongside and parallel with the catheter, by drawing them up between the curette and the catheter. This method does far less damage than does the most gentle exploration with a finger, which in our experience is rarely necessary and not so effective as a catheter. The missile will be found deepest embedded and, if not readily detected, is much best left in situ, whence, if it causes local sepsis, it can be removed subsequently. The dura must now be closed, if necessary by a fascial graft (best taken from the fascia lata of the thigh) and the scalp closed by mattress sutures, *without drainage.*

Sepsis.—In all head wounds drainage must be avoided at all costs. Should sepsis supervene, one or more stitches must be removed from the lower end of the scalp wound. High temperature, rapid pulse, loss of consciousness, and convulsions indicate diffuse meningitis. In this event the dura must be reopened, and Prontosil, 2 tablets thrice daily, may be given by mouth, but the prognosis is hopeless. More commonly a cerebral abscess gradually develops in the depth of the brain, often round a retained missile, and shows the signs described in any textbook. The dura may have to be opened owing to increased pressure before it is advisable or possible to undertake an operation for drainage of the abscess or removal of the missile, and in these cases a fungus cerebri will develop, which may be dressed with a 15–20 per cent. sterile saline solution.

Injuries of the Spinal Cord and Column

In war injuries of the spinal cord, like those of the brain, pressure of indriven fragments of bone causes extensive circulatory disturbance and suggests more extensive damage than is really present. Removal of this pressure will at once relieve the troubles due to circulatory disturbance, but not those due to destruction of the cord. Since the cord, like the brain, cannot regenerate, there will be no ultimate return of function if the cord is completely destroyed or the circulation not promptly restored. The cord proper ends in the lumbar enlargement opposite the first lumbar vertebra. Below this level the spinal canal is occupied by the cords of the cauda equina, peripheral nerves capable of regeneration if sutured; therefore the prognosis of wounds and fractures of the lumbar spine and sacrum are better than elsewhere, and operation is always indicated if any nerve lesion is detected in this region.

FUNCTIONAL PARAPLEGIA

It must not be forgotten that, especially in the stress of air-raids, functional lesions may be met with which in the hurry of a rush of casualties may be mistaken for an organic paralysis and even operated on to the very great detriment of the patient. In these functional cases one or all the limbs may be affected, irrespective of the point at which spinal injury is complained of. There is usually a localised point of acute tenderness and no obvious deformity. Radiography will not show any lesion. Anæsthesia, when present, is usually of the "stocking and glove" type corresponding to no definite spinal segmental distribution. Muscle paralyses are often irregular and tend to be spastic rather than flaccid, and sphincter control is never lost. No Babinski sign is present. The condition is likely to be confused with spinal concussion.

SPINAL CONCUSSION

A sharp fall on the shoulders, a blow on the back, a crush, or the impact of a high-velocity bullet or bomb fragment near the spinal cord, especially if a vertebral body has been penetrated, may cause spinal concussion There may be complete palsy or only paralysis below the level of the lesion, there is no localised point of tenderness, sensory disturbances correspond to spinal segmental distribution, and paralyses are regular and flaccid Sphincter control is lost but tends to be regained rapidly, and a steadily progressive improvement of all signs and symptoms takes place in a few hours to a few days Probably these cases have hæmorrhage into and round the cord in severe cases, and these may take some weeks to recover finally It must, however, be realised, as observed by Makins, "that it should be clearly recognised that a general condition, such as is indicated by the term 'concussion of the brain,' is in no wise implied The condition is really far more allied to one of contusion, and strictly localised to that portion of the spinal cord undergoing the destructive process" The treatment is complete rest, with catheterisation in the early stages if necessary Most patients make a complete and comparatively rapid recovery

FRACTURES OF THE SPINAL COLUMN

The spinal column may be fractured by crush accidents, due to burying or from falling masonry, or by bomb wounds, in which event they are often fatal from the extent of the visceral injuries which frequently accompany them As with the skull, the bone damage is in itself unimportant, but in most cases the displacement at the time of fracture causes grave and permanent damage to the spinal cord If such damage has not occurred, every effort must be made to prevent it Even if the cord is already crushed, efforts must be made to prevent damage from any further displacement of bone To this end the *first aid treatment* is mainly directed, and all patients with fracture or suspected fracture of the spine should be immediately turned rigidly face downwards to prevent rotation of the spine, for this position allows the vertebral bodies to sag forwards away from the cord and prevents any risk of further backward displacement and additional injury to the already crushed nervous tissue The patient must be lifted in this prone position and transported thus on the stretcher, the shoulders, neck, and chest being supported on a cushion, and the legs tied together If there is a wound, it should be dressed

In the *casualty hospital* careful clinical examination, including radiography, should be made in all suspected cases of spinal injury in the reception room, both for local signs in the spinal column and for general signs of damage to nerves below the level of the lesion If any doubt exists radiography is essential and must be done with the patient on the stretcher and without turning him

Three types of fracture will be met with:—

(1) Fracture dislocation usually simple
(2) Compression fracture, always simple
(3) Fractures of transverse processes spines, and laminæ, often compound and the result of obvious bomb or bullet wounds These are only important in so far as nerve damage has been or may be inflicted

Fracture dislocation results from hyperflexion and is usually seen as a result of crushes from falling masonry or falls from an aeroplane The patients are usually dead or die in a few hours or days if the lesion is above the upper dorsal region Extensive nervous damage is the rule there is loss of sensation and power below the level of the spinal damage and at that level acute pain, usually referred, is often experienced as the result of pressure on nerves Incontinence of fæces is common, and urine overflows from a full bladder if the lesion is above the lumbar region, but there is dribbling incontinence if the lesion is below that level. Bed-sores are common, and ascending renal infection is rapidly fatal in those cases in which a suprapubic cystostomy is not performed early Sterile catheterisation is impossible in the rush of war surgery and nursing The treatment of these cases with an efficient plaster jacket in hyperextension is the same as carried out in civilian practice In a rush of casualties all such cases must be sent direct to a suitable base hospital for treatment

Compression fractures usually result from a heavy fall on the buttocks from a height and are not uncommon after parachute descents and aeroplane crashes Pain in the back and stiffness are the chief complaints, and nervous lesions if present usually result from pressure on the spinal nerves at the level of the lesion All cases of falls with persistent backache should be radiographed, for this condition cannot be diagnosed otherwise, and by this means long confinement to bed and permanent backache can often be prevented Treatment consists in the application of a well fitting plaster of paris jacket with the spine in hyperextension, and all these patients should be sent to a base hospital for this treatment, because it is not urgent and has no place in the surgical procedures of a casualty hospital

Fractures of the spine due to projectiles usually take the form of depressed fractures of the neural arches, spines, or transverse processes of the vertebræ, with considerable muscle damage and compression of the spinal cord by bony fragments, which, as in the brain, cause considerable embarrassment of the circulation and so increase the results of their direct pressure on the cord Such fractures may occur at any level of the spinal column, and the nervous symptoms will vary both with the level and with the amount of pressure on and direct damage to the underlying spinal cord It is important to ascertain whether or not the spinal dura has been opened by the projectile or perforated by depressed fragments of bone Very important viscera lie immediately anterior to the spinal column and are often damaged by the projectile and fragments of bone with rapidly fatal results, hence the mortality rate of spinal wounds is high, apart from the mortality rate from respiratory, renal, and trophic lesions directly due to the nervous lesions

Radiography is essential to identify and localise missiles and bone damage, for this purpose lateral and anteroposterior views are necessary These patients do not stand transport well and should either be taken direct to a base hospital or, if operated on at a casualty hospital, detained for at least ten days thereafter As a general rule all gunshot wounds of the spine should be submitted to early operation, unless the patient is obviously moribund, with the objects of preventing sepsis, removing pressure from the spinal cord, and preventing complications which result from nerve damage and threaten life The dura mater may be either intact or perforated, the prognosis being far better in the former case, but in both the principles of operation are identical It is particularly desirable that all patients with intense pain from pressure or evidence of partial conductivity of the spinal cord should be given preference and operated on as early as possible, for pressure causes circulatory disturbances, and the importance of early relief of this interference with the circulation of the central nervous system cannot be overestimated if a good result is to be anticipated from operation

The skin having been purified, the whole area is deeply infiltrated with Barker's solution (see above) clear of the wound track—a procedure valuable both in procuring hæmostasis in the erector spinæ muscles and in diminishing shock. (It is wise also to give gas-and-oxygen or ether inhalation anæsthesia.) The wound and its track are then excised and explored down to the laminæ of the arches, and every effort is made to estimate the bone damage accurately. Free exposure is essential, and muscle should be extensively separated to ensure this Depressed bone is removed, it being best to start by removing with laminectomy forceps a sound lamina either above or below the damaged ones, as may be most convenient All depressed fragments are now removed; this is easily done on the posterior and lateral aspects of the cord but not so easily from the anterior aspect of the spinal theca and cord, for care must be taken not to damage the nerve-roots

Search must be made in the canal for any foreign body or missile previously localised, and care is necessary in this both because it can easily slip up or down and pass from reach and because gentleness of handling is essential to prevent further damage to the cord; a curette is the safest instrument to use, and the value of previous localisation is obvious.

It may be found that the dura mater is intact, in which event no attempt should be made to open it, for there is sure to be an element of concussion and the relief of external pressure alone is usually sufficient to give relief to pressure from intrathecal hæmorrhage, which is best left to undergo absorption without any further interference; moreover, incision of the dura is liable to introduce sepsis. More often the dura is torn and lacerated, in which event the edges should be trimmed and excised and the condition of the cord and nerves ascertained.

In the lumbar region the filaments of the cauda equina should be sutured—a tedious task and one giving all too often most disappointing results, presumably because it is almost impossible to unite the correct distal and peripheral ends, but every effort should be made to do so. The cord and arachnoid space are gently washed, bone spicules and shell fragments removed together with any obviously separated pieces of cord, and the dura mater sutured or closed if necessary with a fascial graft taken from the aponeurosis exposed in the incision The muscles are then allowed to fall into position and the fascial aponeurosis and skin closed without drainage

Only when the body of the vertebra is severely crushed or there is a fracture dislocation is it necessary to fix the patient in a plaster-of-paris jacket after the operation. When complete section of the cord has taken place, no return of function is to be anticipated; but we do not agree with those surgeons who do not advise operation when there is total loss of conductivity of the cord, because usually, in the early stages at which these cases are seen, no opinion can be formed of the extent of the cord damage without direct inspection, for spinal hæmorrhage, concussion, and pressure from bone fragments may produce all the signs of a complete lesion. Immediate operation by relief of pressure and prevention of sepsis will allow restoration of function in these cases, whereas, if they are not operated on, complete loss of function persists permanently.

RETENTION OF URINE

In all spinal and many head lesions retention of urine, with all its attendant risks of infection, is common. Unless this retention is promptly relieved, back-pressure up the flaccid ureters causes renal embarrassment, and the ascent of infection from the stagnant bladder soon results in the death of the patient from surgical kidney and uræmia This infection, although more prone to follow catheterisation, will often supervene without it, owing to the stagnation in bladder and bowel alike; moreover, under air-raid conditions, it is impossible to ensure regular catheterisation, especially with due aseptic precautions. In all such cases therefore a *supra-pubic cystostomy* must be performed at the earliest possible moment and can with advantage precede craniotomy and laminectomy when there is retention of urine

The Great War proved beyond doubt that these cases treated by early suprapubic cystostomy survive, whereas those treated by catheterisation, expression, and other means soon die from ascending renal infection. The operation is performed in the ordinary way, but as a rule no anæsthetic is necessary. If one is needed, local infiltration is sufficient A small puncture is made in the distended bladder when it is reached through the middle-line incision; a De Besser self-retaining catheter is inserted, stretched on a metal probe; the aponeurosis and skin are closed round it and the catheter is strapped in This should result in a watertight opening in the bladder.

Peripheral Nerve Injuries

Wounds or injuries of the peripheral nerves are common. Failure to recognise them and to operate early may lead to loss of man-power and much inconvenience to the patient. In air-raid surgery, however, owing to the presence of infection, it is generally wiser not to attempt nerve suture or grafting until the wound is soundly healed—perhaps several months later.

MORBID ANATOMY AND PATHOLOGY

Nerve injuries are generally found in complicating wounds involving other structures, such as bones and blood-vessels. In some cases a small fragment of bomb may penetrate or perforate a limb, injuring the nerve alone The following lesions may be recognised: contusion, severance, and partial ablation. At a later date infective processes complicate the picture, and still later the injured nerves may be affected by callus or scar tissue

Contusion—The nerve becomes slightly swollen, with its sheath hyperæmic or infiltrated with blood There is no loss of continuity of the nerve-fibres, but conduction of impulses is lost.

Severance—The trunk may be cut clean across, as though divided by a knife The ends do not retract to any extent. One case of shell wound of the sciatic nerve was operated on soon after the man was wounded, and the arteria comes was still spurting

Partial ablation—These are important wounds because the ends of the nerve are left widely separated, and a gap of several inches may be left.

CLINICAL EXAMINATION

All wounds of limbs should be carefully examined as far as possible in the reception-room and notes made of any defects in sensory or motor functions A preoperative diagnosis of nerve injury will save the surgeon much time and possibly prevent the overlooking of an otherwise crippling condition.

OPERATION

If a nerve injury alone is suspected, the incision must be so planned that wide access is afforded. Many cases of nerve injury will be found in the routine examination of bomb wounds involving the soft parts or bones. If the nerve is merely contused, it will rapidly recover if left alone If the nerve is severed, simple suture gives good results The suture line may be reinforced by a sleeve cut from a vein or by a free fascial graft, or the sutured part may be embedded in undamaged muscle When the ends of the nerve are widely separated, dissection may be tried to free the ends to allow of coaptation without tension If this fails, it will be best to wait until the wound has soundly healed before attempting any form of nerve grafting

After treatment will include the ordinary principles of wound management, including splinting to avoid the over stretching of paralysed muscles and the necessary electrical stimulation to maintain their vitality When evacuated from the casualty hospitals these patients will probably be grouped in neurological base hospitals, where special treatment can be given The after treatment will often have to be continued for many months In all nerves, the nearer the body they are divided, the longer will be the period before recovery is complete Thus in the sciatic nerve divided in the upper part of the thigh an interval of 2½–3 months is to be expected before recovery takes place In a similar wound in the upper limb this period is usually 12–18 months but may be slightly longer

PROGNOSIS

The prognosis is always best after primary suture if no sepsis has intervened It is never so good in delayed suture or sepsis, and no really good results are to be expected after nerve grafting or implantation The results are much better with some nerves than with others An almost perfect result can be anticipated in the sciatic and musculospiral (radial) nerves when primary union has been successful, but in the median and ulnar nerves muscle weakness and sensory disturbances persist in nearly all cases

REVIEWS AND NOTICES OF BOOKS

Yearbook of General Surgery

By EVARTS A GRAHAM, M D Chicago, professor of surgery, Washington University School of Medicine, surgeon-in chief, Barnes Hospital, St Louis London: H K Lewis and Co 1938 Pp 781 *12s 6d*

THIS yearbook again gives an excellent review of the progress of general surgery during 1938 In an introduction the outstanding extracts are indicated, but there are innumerable interesting articles apart from these The treatment of progressive ulceration due to the micro aerophilic streptococcus by zinc peroxide and the treatment of wounds by urea are notable examples in the general part of the book A simple and very practical continuous suction apparatus is described There are accounts of the results of the sulphonamide treatment of erysipelas, and of the combined treatment of burns with tannic acid and silver nitrate Surgeons who have the management of fractures of the forearm and wrist will be interested in the method of extension of the fingers by plaited cane fingerstalls There is an excellent review of the latest knowledge of cholecystography and accounts of the injection treatment of hernia and the modern treatment of pulmonary tuberculosis by apicolysis

These articles have been selected almost at random to show that every surgeon, whether or not he is an industrious reader of current surgical literature, should possess this book At worst it will recall to his memory papers he has forgotten, it is more likely to introduce him to at least some that he has overlooked

Outline of Roentgen Diagnosis

Atlas edition By LEO G RIGLER, M D, professor of radiology, University of Minnesota, Minneapolis, Minnesota London J B Lippincott Co 1938 Pp 212 and 227 figures 30s

THIS textbook, written for undergraduates who in a short time have to learn enough of radiology to make intelligent use of it as one of the diagnostic methods in medical practice, can be recommended as a simple exposition of a subject difficult to condense and clarify The author does not propose to teach technique or to go into the finer points of interpretation or the rarer manifestations of abnormality, and within the limits he has set himself he has succeeded in giving much valuable information The illustrations are all bound together, the text being continuous, so that constant reference from one to another is needed, but the radiograms are technically excellent and well chosen, and little of teaching importance has been omitted A certain degree of dogmatism is permissible here in this type of book, but the classification of bone diseases is too arbitrary and occasionally, for instance in the matter of osteogenic sarcoma, some statements are open to question

Besides the radiograms the illustrations include a number of drawings by Jean E Hirsch who has developed an original technique These are excellent in reproducing anatomical detail and satisfactory in illustrating fractures, displacements, and certain bone conditions, but their value is uncertain when points for differential diagnosis are under consideration A word of praise is due to the excellent printing and production of a book which is conveniently light and easy to handle

Traumatic Mental Disorders in Courts of Law

By WILLIAM A BREND, M D Lond, of the Inner Temple, barrister-at-law, lecturer on forensic medicine, Charing Cross Hospital, London London William Heinemann (Medical Books) 1938 Pp 101 *7s 6d*

DOCTORS who frequently give evidence in courts of law are well aware of the absurdity of a procedure by which medical issues of diagnosis and prognosis are determined by a judge on the arguments of counsel based upon medical evidence This is comparable with the determination of issues of law by a doctor on the arguments of two doctors after hearing two barristers as witnesses, and it is often painfully evident that both judge and counsel, in spite of long experience, are quite unable to grasp the nature of the problem which they do not hesitate to solve Dr William A Brend, whose long experience as medical referee enables him to speak with authority, discusses in this book the difficulties which arise when civil courts are called upon to decide medical issues His views on the relationship of trauma to the development of mental symptoms, which are necessarily somewhat condensed in this short book, appear to be those rather of a lawyer than of a practising psychologist He seems unwilling to accept the view that the expectation of compensation plays a large part in the maintenance of traumatic neurosis He rightly emphasises the importance of psychological stresses which antedate the accident, but it is not very clear how he distinguishes a traumatic neurosis from a neurosis which follows trauma but is not caused by it. Any theory of the ætiology of traumatic neurosis must take account of the fact that in practice this disorder hardly ever occurs in patients who receive an injury in circumstances which do not entitle them to compensation from anyone. Dr. Brend is on firmer ground in dealing with the position of the medical witness in civil actions and the unsuitability of existing legal procedure for arriving at a correct medical decision. When he draws attention to the alleged bias of the expert witness he is not perhaps making adequate allowance for the fact that a medical referee, like a judge, hears only disputed cases. For one case that comes to trial there are probably twenty that never reach the court because there is no dispute between the doctors on the two sides, and even in disputed cases the point at issue is often one upon which medical opinion is legitimately divided, such as the relationship between trauma and organic disease.

These points, however, are unimportant compared with Dr. Brend's main thesis, which is that medical issues should be decided by a medical board. It is to be hoped that his carefully argued case will be considered by the Royal Commission now at work on the question of workmen's compensation.

Essentials of Human Embryology

(2nd ed.) By **Gideon S. Dodds**, Ph.D., professor of histology and embryology, school of medicine, West Virginia University. London: Chapman and Hall. 1938. Pp. 316. 20*s*.

This is a simply written account of the main points in human development which bear on the work of medical students. It does not attempt to deal with details to any extent, but where these are introduced they are given accurately and clearly. Attention is paid to anomalies from the embryological standpoint, and these are summed up in an excellent last chapter. The book is well illustrated and can be recommended to those who want a summary, as distinct from an abstract, of embryonic development.

Clinique chirurgicale des pays chauds

By **Botreau-Roussel**, director of the École d'Application du Service de Santé des Troupes Coloniales; and six others. Paris: Masson et Cie. 1938. Pp. 335. Frs 80.

This book is based upon the course of special surgical instruction given to officers of the Service de Santé des Troupes Coloniales before their service abroad. The matter is treated from an essentially practical point of view but the various sections have been written by men with particular experience and knowledge of their subjects whose aim is to maintain a proper spirit of criticism and to foster further research. The opening chapter concerns the interaction of malaria and surgical procedures and contains a useful section on malarial syndromes simulating surgical conditions. Then comes a chapter on the surgical aspects of dysentery and colitis, whose value lies in its conservatism, followed by an important section on the surgery of liver abscess. Naturally, the surgery of filariasis occupies an important position and its practical aspects are well illustrated. Non-filarial elephantiasis, schistosomiasis, tropical ulcers, suppurative conditions and the surgical complications of certain helminthic and bacterial infections receive notice, and there is a most interesting chapter on yaws. The book closes with a useful section on surgical tuberculosis in the African negro, founded on a series of original observations extending over more than twelve years. Since the book is based upon a course of special lectures general surgery is omitted, but a section on hydatid disease should have been included.

The illustrations are excellent and the book is well worth reading by those practising surgery in the tropics.

Medical Entomology

(2nd ed.) By **W. A. Riley**, Ph.D., Sc.D., University of Minnesota; and **Oskar A. Johannsen**, Ph.D., Cornell University. London: McGraw-Hill Publishing Co. 1938. Pp. 483. 25*s*.

In its new edition this book, which was first published six years ago, has been thoroughly revised and modified in points of detail, but its general form is little changed. It remains one of the most concise and well-balanced surveys of the subject that is available.

The Rheumatic Diseases

In 1934 the Royal College of Physicians appointed a committee on chronic rheumatic diseases, consisting of 18 members under the chairmanship of Sir Humphry Rolleston, and this committee has since published four annual reports which have contained valuable contributions to our knowledge of their subject. Four years ago the Empire rheumatism campaign was inaugurated, and the R.C.P. committee became the scientific advisory committee of the newly constituted Empire Rheumatism Council. From now on the annual reports will be replaced by a new journal, *The Rheumatic Diseases*, published for the council by Messrs. H. K. Lewis of 136 Gower Street, W.C.1, and edited by Dr. C. W. Buckley, the former editor of the annual reports, with the collaboration of Dr. W. S. C. Copeman and Mr. A. G. Timbrell Fisher. The journal will appear about three times a year, and will consist of original papers and reviews dealing with all aspects of rheumatism, both chronic and acute, together with reports of the work of the Empire Rheumatism Council. The first number, published in January at 6*s*., contains a foreword by Sir William Willcox and papers on the rheumatic virus, the hæmolytic streptococci of the respiratory tract, and the relation between acute rheumatism and rheumatoid arthritis, and a case-record of Heberden's nodes in a girl of 15. It also contains Lord Horder's annual report as chairman of the Empire Rheumatism Council, in which he is able to record remarkable progress in spite of general preoccupation with threats of war. He announces that following the formation of a rheumatism council in Canada last year one is now to be formed in Australia. A research foundation is also being set up to investigate the causes of the high incidence of rheumatism in the training establishments of the Royal Navy.

Geburtshilfe und Frauenheilkunde

This is the first number of a new German monthly journal of obstetrics and gynæcology published by Georg Thieme of Leipzig. It appears under the ægis of a distinguished editorial board which includes Amreich, Kaufmann and Schroder, and counts among its foreign representatives Holland, Novak and de Snoo. Its aim is to bring recent research to the notice of those in practice. The contributions to this number cover a wide field, including a general survey of functional gynæcology by Schröder, papers on the treatment of amenorrhœas with ovarian hormones, the use of pregnancy serum in habitual abortion, and the rôle of drugs in obstetrics, reports of meetings, and book-reviews.

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THE LANCET

LONDON SATURDAY, MARCH 18, 1939

LIFE-STORY OF SIMPLE HERPES

It has long been recognised that clinically herpes falls into two main groups, idiopathic and symptomatic. Before the causal agent was shown to be a filtrable virus present in the fluid of the vesicles it was thought that, in the symptomatic cases, the herpetic eruption was the work of the organism responsible for the primary condition—e g, the pneumococcus in pneumonia. This hypothesis, however, failed to explain the idiopathic cases. The demonstration of the virus reversed the situation: the idiopathic group now became understandable on the basis of infection from without, even though this was not always easy to establish, but in the symptomatic group no such interpretation was possible, for in the vast majority a recent extrinsic infection could be ruled out. Two possible explanations were accordingly put forward: first that sufferers from symptomatic herpes are carriers of herpes virus, which is activated by conditions such as pneumonia, malaria, and protein shock; secondly that the primary disease gives rise to changes that result in the evolution of herpes virus de novo. The latter hypothesis, unpalatable to most virus workers, had its exponents, but the former more reasonable explanation was not long in finding support. In 1922 LEVADITI, HARVIER and NICOLAU[1] demonstrated herpes virus in the saliva of healthy persons, and two years later BUSACCA[2] isolated it from the conjunctival sac. This proved the existence of carriers of herpes virus and it was soon shown that, judging by samples, about two thirds of the population have herpetic antibody in their serum. By the investigations of ANDREWES and CARMICHAEL[3] and of BRAIN[4] a close correlation between recurrent herpes and the possession of herpetic antibody was established.

On p 629 of this issue Dr BURNET and Miss LUSH take the epidemiology of herpes a stage further. Making use of the egg-membrane technique, which BURNET'S researches have done much to make available for virus study, these Australian workers have been estimating herpetic antibody in human sera. They were induced to undertake this investigation by WEYER'S[5] claim that herpetic antibody is absent from the serum in early poliomyelitis, and although they were unable to confirm this, they have made a number of interesting observations in other directions. Not only have they confirmed the findings of previous workers as to the widespread existence of herpetic antibody in human sera, but like ANDREWES and CARMICHAEL they have been struck by the fact that the people examined have either much of the antibody or none at all; there is no intermediate group. This finding, as they point out, can only be explained on the assumption that those who are infected with herpes virus become permanent carriers. A further important observation concerns the distribution of herpetic antibody among adults in the different strata of society: they report that the proportion proved much higher in the "hospital class" than among the well-to do. It is the persons possessing antibody who carry the virus and are subject to recurrent attacks of herpes, and the uneven social distribution is consistent with the idea that the primary infection takes place in the early years of life; if it is avoided at that time increasing age brings increasing resistance—not, it seems, through the development of a specific immunity but through some change in the mucous membranes that renders them insusceptible to the implantation of herpes virus. There is indeed some positive evidence that the primary herpetic infection does occur early in life. DODD, JOHNSTON and BUDDINGH[6] have shown that aphthous stomatitis in infants and young children is caused by the herpes virus and they regard this condition as a primary herpetic infection. BURNET and LUSH isolated herpes virus from two young children with aphthous stomatitis at a time when neither child had any herpetic antibody in the serum, and three weeks later the serum of one child contained a considerable amount of antibody. To sum up the discoveries of the last ten years one may say that primary herpetic infection, commonly in the form of a stomatitis, occurs in early childhood, and the person thus infected becomes a permanent carrier. If a child escapes infection during the first decade the chance of herpes virus being implanted later becomes remote, the carrier state is not set up, and symptomatic herpes will never develop. In carriers the attack of herpes is attributable to an upset of the balance between host and virus—for example, by infection, worry, fatigue, or menstruation.

One important question remains unsettled: where does the virus reside in the carrier? There are two possibilities. Either it persists in the cells of the affected mucous membrane, or like the virus of zoster it takes up permanent quarters in the appropriate sensory ganglia. BURNET and LUSH favour the second hypothesis but have failed to obtain any corroborative evidence, for they were unable to isolate herpes virus from the gasserian ganglia of individuals who possessed herpetic antibody and were therefore carriers. Although this limited failure does not exclude the possibility that herpes virus is carried in nerve tissue, other considerations make it unlikely. In zoster multiplication of the virus in the posterior spinal root ganglion is almost always attended with intense pain, whereas there is no such pain before a herpetic eruption except in those rare cases where herpes simplex simulates herpes zoster. Furthermore, the virus of herpes simplex has been recovered from the mouth between herpetic attacks, and if its residence during quiescent periods is the gasserian ganglion what was it doing in the mouth? One would expect it to lie quiescent in the ganglia until reawakened into activity by some new upsetting factor. In view of these two objections it is difficult to share BURNET and LUSH's preference for the second hypothesis; the facts seem to be more readily explained by assuming that the virus persists in the cells of the mucous membrane.

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[1] Levaditi, C, Harvier, P, and Nicolau S *Ann Inst Pasteur,* 1922 36 105
[2] Busacca, A *Arch Augenheilk* 1924-25 95 253
[3] Andrewes C H, and Carmichael, E A *Lancet* 1930 1, 537
[4] Brain R T, *Brit J exp Path* 1932 13 166
[5] Weyer, J H., *Proc. Soc. exp Biol*, N Y 1933, 30 309
[6] Dodd, K, Johnston, L M, and Buddingh, G J., *J Pediat* 1938, 12 95

WAGES AND SICK-PAY

THE Court of Appeal has decided in MARRISON *v.* BELL that an employee who has been absent from work through sickness has a right (unless there is a special agreement to the contrary) to draw both his wages and also his insurance benefit. Marrison was a salesman employed at £3 *10s* a week. He became ill and went to hospital. After he had been absent for 16 weeks his employer gave him a week's notice. Marrison then sued his employer for £56—namely, 16 weeks' wages. Bell, the employer, denied liability. He had been obliged to engage and pay another man in Marrison's place; moreover Marrison had been receiving health insurance benefit at the rate of 18*s* a week; to pay him his wages would mean that he received £4 8*s* weekly. Bell contended that the contract had been broken because it was subject to the implied condition that it should be discharged if Marrison was unable to perform his service through incapacity. Alternatively he contended that the continued absence of an employee without his master's consent discharged the master from liability under the contract. The county-court judge found in favour of the master. He did not regard the contract of service as terminated by the workman's absence, but he thought that the right to wages ceased during that absence unless there was some express agreement to the contrary. It was inequitable that Marrison should draw both wages and insurance benefit.

In the Court of Appeal a different view was taken. Lord Justice SCOTT was clear that illness was not a breach of a contract of service. There was a long series of cases to the effect that, irrespective of the length of notice under the contract, wages continued during sickness until the contract was terminated by notice. In Elliott *v.* Liggens (1902) the court had to consider the effect of the receipt of part of the workman's wages by way of compensation under the Workmen's Compensation Act. It was then decided that the act had introduced a modification; while the workman was receiving some part of his wages as statutory compensation, his common-law right to his full original wages must be regarded as suspended. But health insurance benefits were not of the same nature as workmen's compensation payments. The insurance benefit was something additional, consisting of medical assistance or similar advantages; it had nothing to do with wages; when Parliament established national health insurance, it never intended to interfere with the worker's right to his wages. Marrison was entitled both to the insurance benefits and, until his contract of service was terminated by notice, to his wages also.

The decision has caused considerable misgiving. It will hardly improve the relationship between master and servant. The master will feel aggrieved if he has to pay two men's wages for one man's work. Lord Justice SCOTT observed that the decision need not embarrass employers because most employees are engaged on a weekly, or at any rate on a monthly, basis. The employer can therefore terminate the contract of service at short notice. But the decent employer does not want to feel obliged to dismiss a servant who is ill. In domestic employment there has been a general idea that sick wages plus insurance pay should equal ordinary pay. This has seemed equitable, but the employers who have thought this solution was reasonably adequate now find that they have paid the sick servant less than his rights. In factory and outdoor employment it has not been uncommon to act as the defendant did in Marrison *v* Bell—namely, to stop paying wages during the workman's absence (in view of the provision of sick-pay) and to take him back as soon as he is well again, provided that he recovers in a reasonable time. The Court of Appeal decides that the master must either give notice or pay wages. The medical aspect is uncomfortable. The employee who knows that he will be dismissed if he is absent through sickness will be tempted to disobey medical advice; he will remain at work when he ought to go sick, and he will go back to work before he is fit to do so. Anxiety over the prospect of dismissal will be an added cause of depression. The legal situation may be met by an express agreement that the amount of insurance benefit payment shall be deducted from wages during a period of absence through illness. Otherwise fresh legislation may be needed to correct the unforeseen consequences of the decision.

ANTI-TUBERCULOSIS WORK IN WALES

TWENTY-SEVEN years ago the Welsh national association, created in memory of King Edward VII, entered into voluntary agreements with local authorities and insurance committees in Wales to provide treatment for tuberculosis on their behalf. All went well for two decades, but in course of time a feeling gained ground among certain of these authorities that the expenditure on tuberculosis was out of proportion to the amount of local funds available for public-health work. The dissatisfaction came to a head when the association's proposals for the third fixed-grant period suggested still higher expenditure to allow the association to take over activities for some of which the local authority was responsible. The association proposed to undertake home-visiting and aftercare, to control the tuberculosis registers, and to oversee the disinfection of the home after removal of an infectious case. It proposed to extend its scope just because in many

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areas the local authorities had failed to carry out their statutory duties, and it was believed that this default was one of the reasons why the death-rate from tubercle in Wales was not decreasing as it was in England and Scotland. The clash of opinion led to the appointment by the Ministry of Health two years ago of a committee of inquiry whose report is summarised on a later page. At the commencement of the inquiry it appeared as if the efficiency of the association's work was being challenged, but the aspect of affairs soon changed. Evidence taken in public made it clear that the association was effectively carrying out its proper functions in the diagnosis and treatment of tuberculosis, and that there was a general desire for its continuance on a national basis. It was however also clear that the lamentable failure of local authorities to do their own preventive work afforded justification for the suggested incursions into other branches of work. Graphic accounts are given of appalling housing conditions, to which attention had been drawn in vain by local medical officers of health; of school buildings long condemned as dangerous to health but still in use; of antiquated and objectionable methods of disposal of sewage; of a water supply liable to pollution; of failure to provide clean milk or midday meals for children. It is fair to add that the committee found a great disparity among local authorities in the standard of performance of public health services and that some are praised for foresight, enterprise and public spirit. The later part of the inquiry became in fact an investigation into the efficiency of sanitary administration in Wales, from which it emerged clearly enough that many of the Welsh local authorities are too small and too poor to carry out public health work efficiently, whatever may be the case with the large urban areas in the south. There should be some combination of small areas to provide a unit of population capable of finding the effective machinery, with the corollary of whole-time M.O.H.'s and sanitary inspectors covering the whole country. The inquiry, which has throughout been fully reported in the Welsh press, has undoubtedly led to a quickening of the national health conscience, and will stimulate backward authorities to play their part in any anti-tuberculosis scheme.

TWENTY-FIVE YEARS OF PSYCHO ANALYSIS

SINCE 1914 members of the British Psycho-Analytical Society have been probing the springs of desire and the wells of loneliness, but not until last week has the society itself made any public appearance. At the silver jubilee dinner Dr ERNEST JONES, founder of the society, had on either side of him a minister of the Crown; at the high table were representatives of all branches of the medical profession, while each of the separate tables had its own international gathering. Dr SIGMUND FREUD, the society's most distinguished member, was unable to be present, but his daughter, Miss ANNA FREUD, conveyed a message from him and was entrusted with a message in return. Greetings were personally conveyed from kindred psycho analytical societies in France and Holland, two of the three European countries in which the practice of psycho analysis is still admissible; the parent society in Vienna exists no longer, and Dr JONES thought everyone would agree that the British society is now the chief bulwark of psycho-analysis in Europe. Earl DE LA WARR, proposing the principal toast, recognised the change in public attitude to many questions—legal, educational, sex relationships—that had been brought about by the indirect influence of psycho-analysis; and Mr WALTER ELLIOT recalled a pre-war conversation with Dr EDWARD GLOVER when they spoke together of medicine turning through psychology to sociological study, although neither of them could have foreseen what it would lead to. It was Dr GLOVER, in proposing The Guests, who unkindly remarked that psycho-analysts with very slight exception are bad writers; but that matters the less because, said he, they are themselves so much at loggerheads on education as to make it unlikely for them to issue any major pontifications on the subject for some time. And Dr JONES, although himself at one time no mean fighter, excused himself from further endeavour to persuade medical colleagues to take a more objective view of the problems, with which psycho analysis is concerned, by admitting frankly that the internal difficulties nature has imposed in the way of reaching the unconscious mind, and still more in the way of maintaining a free communication with it, have proved far greater than was at first supposed. It will, he said, take perhaps a couple of generations yet of intensive work before we shall be in a position to present to the outer world a well codified body of knowledge. For himself the anniversary encouraged rather a mood of retrospection, a sort of stock-taking. He came into this field of work by the following route. In the usual preoccupation of youth with the general problems of life and its meaning, he had passed first from a study of religion to that of philosophy, but evermore came out of the same door wherein he went. A more intimate contact with reality then took him into the field of sociology, in which he fared no better until he tried to bring our social institutions—laws, government, marriage—into relation with a biological knowledge of human nature. Some intuition told him that access to the fundamental layers of the mind could most advantageously be attained by a detailed study of the clinical phenomena investigated by psychopathology, and he looked around eagerly for the company of the few minds who took them seriously. Then came FREUD; and, said Dr JONES, the rest of the story you know.

MEDICAL SCHOLARSHIPS AT LONDON UNIVERSITY.—The London Inter-Collegiate Scholarships Board announces that an examination for twelve medical scholarships and exhibitions of a total value of £1040 will begin on May 8. They are tenable at University College Hospital, King's College Hospital, the Royal Free Hospital, and St. George's Hospital. Full particulars and entry forms may be had from the secretary of the board, University of London, Senate House, W.C.1.

ANNOTATIONS

C.C.H. OR C.E.P.?

We publish on p. 655 an important criticism of the arrangements now being made for handling casualties sustained in air attack on big cities such as London According to the plans outlined in the Ministry of Health's memorandum [1] all the large general hospitals are to be quickly transformed into casualty-clearing hospitals (with not more than 200 beds), while most of the smaller and special hospitals will become first-aid posts, receiving only the walking wounded. It will be the duty of first-aid workers at the site of destruction to divide the casualties into those that go home, those that go to first-aid posts, and those that go on stretchers to the casualty-clearing hospitals, which will cater chiefly for the more serious cases. Dr. Crome and his colleagues believe that this scheme will break down after the first big air-raid, because any building known to be a hospital will at once be confronted with a stream of wounded of all categories: some of those who walk will have wounds of chest or abdomen, and some of those on stretchers will have trivial injuries of the leg Even if the movements of the victims are controlled, accurate classification is beyond the power of red-cross orderlies; yet the experience of the world war and the Spanish war shows that an accurate classification at the earliest possible moment, and a correspondingly accurate and rapid evacuation, are the most urgent of all needs The Ministry of Health is clearly anxious to promote this rapid evacuation, but the authors of the article think that the "casualty-clearing hospitals" it is planning put too much emphasis on the "hospital" and not enough on the "casualty-clearing"; and this leads them to propose an alternative type of centre, which they term a "classification evacuation point," and an organisation based on it. In choosing the existing general hospitals as the casualty-clearing centres the authorities have no doubt been attracted by their waiting-halls, operating-theatres, equipment, and beds; but in the opinion of Crome, Fisher and Shirlaw these advantages are outweighed by the fact that most of the buildings are old and highly collapsible, while many are not conveniently placed for rapid evacuation of casualties by road and rail. If it cannot be underground, a casualty-clearing centre must, they say, be in a steel-framed building, and there are factories, warehouses, garages, hotels, and blocks of offices and flats much fitter for the purpose than our time-honoured centres of healing The fact that Rahere or Guy chose a particular site for his hospital many years ago does not mean that this site is necessarily the most appropriate for an evacuation point; the steel-framed flats round Baker Street station, for example, with arterial roads and main-line and underground railways close at hand, might well be preferable if immediate evacuation, rather than immediate surgery, is the primary aim

To visualise the possibilities of air warfare and provide wisely against all of them is a superhuman task, and the temptation is all the stronger not to deviate from decisions once they are reached. We feel sure however that the Minister of Health and his advisers will give full consideration to the argument now advanced Much hangs on these issues; for if the inhabitants of London find themselves in the front line their morale, like that of other troops, will largely depend on the care their wounded receive.

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[1] Emergency Hospital Organisation Emergency Medical Services Memo No 2 See *Lancet*, March 4, 1939, p 523

WHOOPING-COUGH: DIAGNOSIS AND PROPHYLAXIS

New work on various aspects of whooping-cough control is discussed by Sauer.[1] He reviews the main evidence upon which the coccobacillus of Bordet and Gengou (*Hæmophilus pertussis*) has been accepted "quite universally" as the sole causal agent of whooping-cough. The evidence includes animal and human transmission experiments carried out under conditions which excluded the possibility of a concomitant filtrable virus. On the question of diagnosis Sauer observes that a protracted paroxysmal contagious cough, lacking the terminal whoop, may be due to catarrhal tracheobronchitis and that clinical whooping-cough may also be simulated by the paroxysmal cough of distemper (snuffle infection) which young children sometimes contract from pet animals In the absence of a history of contact or an unmistakable paroxysm, the diagnosis may be substantiated by an early positive cough-plate, typical lymphocytosis or, later in the attack, a positive complement-fixation test. Clinically typical whooping-cough is sometimes caused by atypical strains of the *H. pertussis*. Eldering and Kendrick isolated such an organism (*B. parapertussis*) and Bradford and Slavin grew some 5 per cent of atypical strains from 160 consecutive "positive" cough-plates These atypical strains darkened the medium and showed early pleomorphism, and were all strongly antigenic when injected into rabbits It is not yet known whether potent whooping-cough vaccine protects against these atypical strains, but Sauer does not favour their inclusion in stock vaccines He insists that the ultimate test of vaccine-conferred immunity is a comparison of the incidence of whooping-cough after intimate exposure to infection in *similar groups of unvaccinated* and vaccinated susceptible persons in the same age-range—preferably between eight months and three years. Few of the published reports of success in vaccine prophylaxis would satisfy these criteria. For the past year "authorised" pertussis vaccine, prepared according to Sauer's specification, has been supplied in double strength (20,000 million organisms in 1 c cm) Three injections of this vaccine are given "just under the skin" at weekly (or longer) intervals, the first and second over the left and right deltoids and the third over the left triceps. Children under two receive a total dose of 5 c cm (1, 2 and 2 c cm.); those over two, 6 c cm (1, 2 and 3 c cm). Pyrexia and transient local reactions may occur and induration, or nodules, may persist for a week or more

After the height of an attack has been reached, or after adequate vaccine prophylaxis, complement fixation is nearly always demonstrable provided freshly isolated cultures are used Sauer notes that since 1934 L Daughtry-Denmark has employed complement fixation as a routine test a month or more after the last dose of vaccine. If fixation is not complete (four plus) she gives an additional injection. Good results are claimed by several workers from the use of convalescent serum, particularly the reactivated, so-called "hyperimmune," serum obtained from parents after injection with three doses of vaccine at 3-day intervals As with measles serum, it is now possible to dry and preserve pooled "hyperimmune" serum, which is redissolved in sterile distilled water immediately before use.

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[1] Sauer, L W., *J. Amer med Ass* Jan. 28, 1939, p 305

To be of any value, serum of any type must be injected in the incubation period or early catarrhal stage During the paroxysmal stage attempts to confer either active or passive immunity are futile

A SIMPLE EXPOSITION OF POPULATION PROBLEMS

Though the population question has now become "news," and articles on the declining birth rate are common, it is doubtful whether the casual reader understands why the decline is viewed so seriously. He knows that the birth rate is still higher than the death rate, and that year by year the population continues to increase He notes the continued prevalence of unemployment and recalls the warnings that used to emanate from authoritative sources on the danger of over population If experts were wrong when they talked of over population why, he may well wonder, should they be right when they say that the evils of under population are now to be feared? This complacent attitude will not be changed by dogmatic statements or alarmist prophecies What is needed is an exposition of the demographic position, and for this it is necessary to know something of the modern methods of measuring population growth, especially of the simple methods introduced by R R Kuczynski These repay study not only for the new light they throw on population problems but for the intellectual satisfaction derived from observing the emergence of order from confusion The methods are clearly explained in a booklet by Mr Glass and Dr Blacker[1] The authors regard the problem before them as falling into two stages (1) how has fertility declined, and (2) why has fertility declined? The second question cannot be attacked effectively until an attempt has been made to answer the first, with which the authors are mainly concerned They begin by showing how misleading the crude birth rate may be when used, as it was used by Mr A P Herbert in the second reading debate on the Population (Statistics) Bill, to measure fertility, and go on to explain how the gross and net reproduction rates are computed and how simply and satisfactorily the latter measures the combined effects of fertility and mortality This chapter is a commendable example of clear and effective argument An account given of the development of the British system of census taking and vital registration includes a description of the important reforms introduced by the long overdue Population (Statistics) Act, 1938 The second reading debate on this measure, which took place on Nov 29, 1937, is curiously reminiscent of the abortive attempt in 1753 to obtain legislative authority to take a census Mr Thornton, M P for York, attacked the supporters of the Census Bill introduced in that year as "presumptuous and abandoned" "To what end should our number be known except that we are to be pressed into the fleet and the army, or transplanted like felons to the plantations abroad? I hold this project to be totally subversive of the last remains of English liberty If any officer should demand of me an account of the number and circumstances of my family, I would refuse it, and if he persisted in the affront, I would order my servants to give him the discipline of the horse pond"

The demographic position in this country, the Dominions, and the United States Sweden Germany, France, Italy, the Ukraine, and Japan are examined and compared with the aid of illuminating diagrams and two short chapters are devoted to discussing various aspects of a question on which census and registration statistics can at best throw but little light—the reason for the decline in fertility The authors think that the explanations offered for individual family limitation are often not the true ones A case is mentioned in which the mother of a family of three children first attributed the limitation partly to the danger of war, but further inquiry showed that a far more potent factor was the threat of the eldest child to leave home if her mother had another baby There is much still to be learnt about the motives of family limitation, and medical practitioners are peculiarly well placed to add to our stock of knowledge on this subject, to which this booklet is an excellent introduction.

RADIOGRAPHIC LOCALISATION

Methods of localising foreign bodies in human tissues become urgently important in time of war and the instructions given by Brailsford[1] might well be studied by all who expect to undertake the care of casualties under military or A R P schemes The apparatus necessary is simple—even a portable X-ray unit is adequate—and although accuracy requires some expenditure of time in the radiological department, both surgeon and patient benefit by the time saved in operating First an ordinary antero-posterior radiogram is taken with a pointer showing the position of the wound Occasionally this is all that is needed, but as a rule further localisation will be wanted To this end metal markers of bent wire of a characteristic shape are then fastened to the skin and further anteroposterior and lateral films are taken, some at least with the patient in the position he will be for operation The series of markers makes it possible to estimate the depth at which the foreign body lies Another useful method advocated by Brailsford is a modification of that proposed by Mackenzie Davidson Two exposures are taken on one film, the tube being at a known height and being shifted a measured distance between each exposure In this way the depth of the foreign body can be determined by simple geometrical calculation Brailsford is strongly opposed to any attempt to extract the foreign body during fluoroscopic screening, an opinion with which most radiologists will agree, but he makes the ingenious suggestion that a skeleton in which the radiologist has fixed a piece of Plasticine in the exact position of the foreign body may be used as a guide

Chaussé[2] describes an elaborate method of localising foreign bodies by means of his "light compasses" A special apparatus is set up in the operating room and is so arranged that once the foreign body is localised two small beams of light can be thrown on to the patient in such a way that they lead the surgeon to the point where the foreign body lies The value of such a method when exploration must be undertaken in the brain or in such dangerous situations as the heart wall must be very real

Closely associated with these methods of localisation is the use of foreign bodies purposely inserted into the tissues for beam direction in radiotherapy The influence of volume on tolerance and even on ultimate result is now thought so important that small applicators 5·0–6 5 cm in diameter are used wherever possible Accuracy of aim which will ensure that the central beam always passes through the centre of the tumour needs localisation much like that described by Brailsford. In the method described by Dobbie[3] a tiny metallic foreign body is placed in the tumour and its relationship to wire skin-markers is established by radiograms taken with a wooden applicator which duplicates that which will be used for therapy. Specially constructed wax blocks, modelled to the patient, make it certain that when the optimum position for the applicator has been determined it will be exactly repeated each time the patient is treated The interesting similarity of these methods of localisating shows how much the two branches of radiology can learn from one another.

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[1] Population and Fertility By D V Glass B Sc, and C P Blacker M D F R C P London The Population Investigation Committee 1939 Pp 101 3s

[1] Brailsford J F, *Brit J Radiol* February, 1939 p 63
[2] Chaussé, C, *Ibid*, p 87

OSTEOGENIC ACTION OF BONE GRAFTS

It is well recognised that the transplantation of fully differentiated hard bone into soft mesenchymal tissues leads to the formation of new bone in these tissues; but the origin of this new bone is disputed. In trying to discover the factor that stimulates osteogenesis, Levander,[4] of Köping in Sweden, has performed experiments of two different kinds—namely, the grafting of adult radius and ulna into subcutaneous and muscular tissues and the injection of bone extracts into muscle. The experiments were done on rabbits and the grafts consisted of fragments 1 0–1·5 cm long The periosteum was scraped away with a sharp knife, and in about half the animals a superficial layer of bone also was removed with a sharp raspatory Thirty rabbits were treated in this way and the histological appearances recorded at intervals of 2–30 days after the transplantation of bone fragments into the subcutaneous or muscular tissues At the end of two days mesenchymal proliferation was apparent, associated with the formation of numerous new blood-vessels. By the sixth day young osteoid seams appeared in the mesenchyme, arranged parallel to the graft or round one or other end. Cartilaginous islets were occasionally seen Meanwhile the transplanted bone became necrotic, the bone cells died off soon, and the transplant was dead at the end of a fortnight Cell division was not seen at any stage. Levander is convinced that the new bone originates in a mesenchymal reaction and owes nothing to transplantation of osteoblasts. He found the haversian canals empty while new bone was being formed round them

The second group of experiments was designed to show what part of the transplanted bone provided the osteogenic stimulus He had decided that it was not the bone cells; nor could it be the lime salts, for boiled bone, still containing unaltered lime, did not stimulate osteogenesis. He thought that the stimulating agent might be transferred from the graft to the surrounding tissues in the form of some substance soluble in the lymph, and he attempted to extract this hypothetical substance from bone and to inject it into muscle After aqueous extracts had proved negative in ten experiments alcoholic extracts were tried; there was reason to think that they might be more effective, for injections of a 40 per cent. solution of alcohol into soft tissues had been found to produce an abundance of young mesenchymal tissue, which would provide the medium of young undifferentiated cells suitable for osteoid transformation. The muscle used for injection was the rectus femoris, because its belly was as far as possible removed from bony contact and origin, and 60 tests were made with alcoholic extracts of mixed bone and callus The bones of a forearm, previously fractured and in process of union, were cut up, macerated, made into a mash, and put into a tube containing 10–15 c cm of absolute alcohol The extracts were kept at 40° C. and injected next day, after dilution with saline About 3–5 c cm. was injected into the rectus femoris, and the period of observation extended over two weeks to two months In 14 of the 60 tests more or less extensive formation of bone or cartilage was observed. In 10 other cases, injection was made with alcoholic extracts of normal bone tissue without callus The technique was the same, but the period of observation was shortened and did not exceed twelve days. In 2 cases cartilage was formed.

Thus in 16 of 70 animals receiving the alcoholic injections of bone, or of bone and callus, either cartilage or bone was formed at the site of injection, while negative results were obtained in 80 control experiments in which alcoholic solutions alone, or alcoholic extracts of connective tissue or muscle, were injected Levander accordingly feels justified in postulating the presence in the transplanted bone of some specific substance that activates the non-specific mesenchymal tissue and causes it to form bone.

COUNTY COUNCILS. 1889 TO 1939

The jubilee of the establishment of county councils in England and Wales is being celebrated this month A well-produced account of their present responsibilities and functions, set out against a historical background, has been issued by the County Council's Association[1] The Prime Minister in an introductory note describes it as an inspiring record of progress The first and major part of the book, which has attractive illustrations of highways, bridges old and new, schools, technical institutes and hospitals, is a general survey; the second part describes the individual activities of one of the 32 councils which are participating in its production. The book is being issued in special editions for local distribution, with the appropriate second part; it is not for sale.

The general survey shows the chaos that arose from the overlapping powers of the units of administration—varying from parish vestries to courts of quarter sessions—which shared the responsibility for local government 50 years ago The bill, introduced in 1888, which provided for the establishment of councils to be entrusted with the management of the administrative and financial business of each county was based on one drafted five years previously by Sir Charles Dilke The contentious clauses in this original draft—such as those providing for control over the poor-law, education, and public health—were dropped, and even then disagreement on the question of control of the constabulary nearly wrecked the bill But a compromise was found, and the Local Government (County Councils) Act was passed in August, 1888 Not till 40 years later were the county councils given responsibility for the full range of public services which we now regard as obviously within their proper scope Nowadays it seems only logical that they should deal with roads and bridges, education, public health, housing, mental treatment, public assistance, agriculture, town and country planning, some aspects of public protection, and registration and licensing, and that they should have supervisory powers—rarely used—over certain smaller authorities in their areas Each of these functions provides material for a chapter in this jubilee book which also includes informative sections on finance and staff The magnitude of county budgets is shown by the estimate of the expenditure of the county councils of England and Wales, excluding London, at over 130 million pounds for the year 1938–39 The present cordial relationship between Whitehall and the county councils is exemplified by the observation that, where 30 or 40 years ago the Government issued an ultimatum, now they are likely to suggest a round table conference There are occasional clashes but on the whole there is an increasing friendliness animating dealings between Government departments and county councils The changes likely to be made in the methods of county government in the future are discussed with a dispassionate appreciation of the defects of the present system—e g , the impossibility of bringing pressure to bear on neighbouring authorities unwilling to coöperate in running certain services The Middlesex county council has prepared a separate account of its activities, to be issued by the same publisher

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[3] Dobbie, J. L., *Ibid*, p 121.
[4] Levander, G, *Surg Gynec. Obstet.* 1938, 67, 705.

[1] *The Jubilee of County Councils 1889 to 1939* London: Evans Bros 1939.

The L C C is to hold a special ceremonial meeting on March 21, after which Queen Mary will open a jubilee exhibition at the County Hall which is designed to present a complete and vivid picture of the council's work today, including its hospital, medical, nursing and midwifery, and ambulance services Several types of mechanical respirators will be demonstrated and other modern hospital equipment

MASS RADIOGRAPHY

THERE is general agreement that radiography is the best means of detecting early tuberculous lesions in the lungs, and where it has been used in the examination of large groups of the normal population it has made possible a striking reduction of the disease The most successful experiment so far recorded was carried out some years ago on the Berlin police force, which had a high incidence of pulmonary tuberculosis All members of, and candidates for, this force were radiographed, and those found to have X ray evidence of pulmonary disease were retired and treated , since when there have been hardly any cases of tuberculosis in the force A similar and more elaborate experiment is now being carried on in England by the Royal College of Physicians under the terms of the Prophit bequest This investigation is being conducted over a period of 5–10 years on suitable sections of the population, and although the results are not yet available for publication its value has been abundantly proved

The only objections to "mass" chest radiography are time and expense, and the shortage of doctors and film material in Germany has led to the development of a form of apparatus which overcomes both these obstacles The principle employed is simple An ordinary camera of the roll film type is mounted in focus at the narrow end of a lead lined funnel approximately four feet long At the broad end of the funnel a fast modern fluoroscopic screen is inserted This combination is mounted on a telescopic stand and can be easily moved up and down An ordinary X ray tube mounted on a pillar is placed at a fixed distance facing the screen end of the funnel The patient walks in and places his chest against the screen, the tube is centred on the middle of the screen, and an exposure is made The camera at the other end of the funnel takes an ordinary reduced photograph of the screen image A single movement of the hand places a new film in position, and it takes less than a minute to centre the tube and funnel for the next patient At a reasonable estimate a hundred patients an hour can be thus examined Depending on the type and size of camera employed, the film roll may contain anything from six to thirty two exposures The roll of films is developed in the ordinary way and later viewed either with a magnifying glass or with a small projector Using a modern wide aperture lens and fast films the detail is surprisingly good and compares favourably with that of ordinary direct radiograms In a modern hospital X ray department the cost of each chest examination works out at about five shillings, whereas with this new indirect method the cost should not be more than a penny per case

It can hardly be doubted that indirect photography of the screen image will come into universal use for examination of large sections of the population such as school children, and it should also prove invaluable in all ordinary hospital work for eliminating normals and reserving detailed, direct X ray examination for those showing evidence of disease This week it is announced in the *News Chronicle* that the entire population of Mecklenburg are to have their chests radiographed by doctors of the S S (Black Guards) More than 900,000 photographs will be taken and they will all be examined at the University of Frankfurt

INDICATIONS FOR CARDIO-OMENTOPEXY

MORE difficult sometimes than the devising or performance of a new surgical technique is the correct choice of patients for it An article at the front of our present issue reveals something of the ingenuity and patient work underlying recent attempts to bring about revascularisation of the ischæmic heart by surgical means, and it may be useful to present at the same time an example of conservative opinion on the practical application of such treatment In addressing a Paris audience on this subject Pruche[1] spoke as a cardiologist, following Le Gac, who had described the technique of cardio omentopexy practised at the Lambeth Cardiovascular Clinic Distinguishing three main types of cardiac ischæmia, Pruche said that in the first, disorder of rhythm due to localised failure of blood supply, a graft could be effective only in the unlikely event of the new vessels reaching the site of the lesion Here we think he misunderstands O'Shaughnessy's conception of cardio-omentopexy, which is that the graft performs its revascularising function, not locally at the site of its application—except perhaps in cardiac infarction or aneurysm, where omentum may have a reinforcing action—but generally through new vessels linking up with the coronary tree Thus lesions due to localised ischæmia may indicate cardio omentopexy because they are evidence of general coronary disease in which the operation would be beneficial Secondly Pruche considered cardiac ischæmia due to coronary spasm and thrombosis The promising results obtained in angina pectoris might, he suggested, be explained by the fact that the omental vessels lie outside the coronary vasoconstrictor reflex arc, but he went on to emphasise the need for caution in seeking an explanation for the mechanism of relief from angina In classical cardiac infarction the operation could give no immediate help, because time must pass before new vessels are formed Infarction however often took place silently without pain, being found at autopsy in old people dying of a progressive myocardial insufficiency Such hearts often showed some degree of natural revascularisation by intercoronary anastomoses The third type, which included cases of myocardial sclerosis with slowly progressive cardiac insufficiency, with or without anginal pain, and without excessive hypertension, should in Pruche's opinion be the most general indication for cardio-omentopexy, although he realised that the patient, in the absence of pain, might object to operation Diagnosis of the condition in its early stages depends, he said, on the electrocardiographic changes, which included low voltage, widening or notching of the Q R S deflection, inversion of the T wave, deviation of the S–T interval, increased voltage of the P wave, and prolongation of the P–R interval. He made it clear that he regarded electrocardiographic changes as the chief evidence that cardio-omentopexy would be useful, and he would hesitate to advise operation in cases of angina where the electrocardiogram was normal He concluded with the remark that although this branch of cardiac surgery is only in its infancy it merits the lively attention of cardiologists.

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[1] Pruche, A , *Bull Soc Med Paris*, 1938, 142, 718

THE M.O H.'S MOVE HOUSE

NEXT week the Society of Medical Officers of Health moves its headquarters from No. 1, Thornhaugh (late Upper Montague) Street, to Tavistock House South. The society has been in its present house for the last 34 years after a long period of migratory existence during which it was a near neighbour of our own at No 1, Adam Street and later at No 9, Adelphi Terrace For a period when John Simon, F.R S., was president of the society, meetings had been held in Whitehall at the offices of the General Board of Health At Tavistock House the society will become the near neighbour of the Medical Defence Union which is also to have its new home in the south extension of Tavistock House when that is completed next year. The house-warming is to await this final readjustment, and in the meantime we congratulate the society on having more room in which to move around and develop its work.

CONTROVERSIAL GROUND IN PSYCHIATRY

THERE are many discordant voices in psychological medicine, and the public, medical and lay, is sometimes tempted to believe that it has no means of finding out where orthodoxy and progressive common sense is to be found, since men of apparently equal experience and standing confidently express opposite views as though they were ultimate truths Reliable guides however are not entirely lacking or hard to recognise There are in this island two chairs of clinical psychiatry, and the occupants of these chairs speak with peculiar authority. One of them, Prof. Henderson, has examined in two recent addresses some of the most controversial ground in psychiatry. In his Maudsley lecture[1] he dealt faithfully with those who would arbitrarily split the field by separating psychoses from neuroses as though they were different in kind and treatment, and he expressed his agreement with the views on these matters set out in a leading article in THE LANCET some time ago[2] In the Salmon memorial lectures,[3] delivered before the New York Academy of Medicine, he considers one of the major socio-medical problems—viz, the understanding and treatment of psychopathic personality. Avoiding alike rigid classification and subtle guesswork, he points out the grounds we have for modified optimism. "We have come to recognise that the rosy picture depicted by many psychotherapeutists in relation to the treatment of such (psychoneurotic) states needs considerable modification This, of course, does not imply a nihilistic outlook but merely enforces the view that much of the psychoneurotic material with which we deal requires far more careful discrimination than has as yet been accorded to it, and, once that has been accomplished, methods of treatment may come to be devised which will more adequately deal with such deeply involved mental states" There are, as Prof Henderson points out with illustrative case-records, among our psychoneurotic patients many who show malignant reactions that no psychotherapy can put right But there is much that can be achieved by a well-organised psychobiological therapy, aiming at social rehabilitation · the doctor who carries it out "must not be a mere psychotherapist, but a physician in command of general medical training," with, besides, an adequate knowledge of the social side of his work. Dr Henderson further points to the danger nowadays of "psychotherapeutically minded pastors, clinical psychologists, lay analysts and enthusiastic social workers" contributing by their one-sidedness to a schism between bodily and mental medicine which it has been the constant effort of psychiatrists and indeed of all sensible doctors to overcome. He deprecates that uncritical, facile acceptance of fashionable and spectacular remedies, whether psychological or physical, which is so harmful because it creates false leadership The trend of his argument is wholly towards the cultivation in the psychiatrist of a sense of responsibility not only towards the individual but also towards society. His exposition, which raises and illumines other important issues, deserves the attention of all those besides the psychiatrists who come into contact with the antisocial psychopath.

Dr. H. GUY DAIN has been returned unopposed as a direct representative of the medical profession in England and Wales on the General Medical Council for a further period of five years from April 27 The other direct representatives for England and Wales are Dr. G. W. Bone, Sir Henry Brackenbury, Mr. Bishop Harman and Sir Kaye Le Fleming.

DR. WILHELM WEYGANDT, who died on Jan. 22, was for many years professor of psychiatry at Hamburg and had become one of the prominent figures in German medicine He was active in introducing the malarial treatment of general paralysis, discovered in Vienna by Wagner-Jauregg, into Germany, and he made important contributions in the fields of cretinism, æsthetics and forensic psychiatry He was insistent that a false humanitarianism should not be allowed to interfere with eradication of mental defect. His chief work, however, was the building up of the mental hospital of which he was director for 25 years into a centre of active research.

The name of Mr. Gwynne Williams appeared last week in a list of consultant advisers to the Ministry of Health on the organisation of hospitals in war-time Mr. Gwynne Williams, who was nominated by the Royal College of Surgeons of England, is we understand unable to accept the appointment

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1. *J. ment Sci* January, 1939, p 1.
2. *Lancet*, 1935, 2, 1185.
3 Psychopathic States. By D K. Henderson, M D. London· Chapman and Hall. 1939 Pp 178. 8s 6d

SPECIAL ARTICLES

CASUALTY ORGANISATION IN AIR-RAIDS

By L Crome, L R C P E
FORMERLY CHIEF MEDICAL OFFICER, XV SPANISH ARMY CORPS

R E W Fisher, M B Belf
FLIGHT LIEUTENANT R.A F O ASSISTANT MEDICAL OFFICER FOR A.R.P, METROPOLITAN BOROUGH OF HOLBORN, AND

G B Shirlaw, L R C P E
ASSISTANT MEDICAL OFFICER FOR A.R.P METROPOLITAN BOROUGH OF BATTERSEA FORMERLY MEDICAL OFFICER IN THE SPANISH ARMY

In order to be able to outline a medical A R.P scheme that can be put into force at once—that is, a short term scheme—it is first necessary to have a long term policy It should then be possible to take the long term policy and see how it can be modified in accordance with short term circumstances and limitations without losing its essentials The short-term scheme should also be designed so that it can gradually be merged into the long term scheme by the addition of protection at each point in order of importance We shall therefore begin by setting out what we think should be the general principles of a long term policy We shall deal mainly with the problem as it affects London, but much the same will apply to any large town It should perhaps be said that our views are not necessarily those of the local authorities by which two of us are employed *

Long-term Policy

The *objects* of a long term policy are twofold (1) To ensure that all casualties are treated in the best possible manner, this means that all casualties must receive full skilled attention as soon as possible (2) To avoid further injury to casualties—i e, to limit exposure to further danger, this is to be attained by evacuating casualties as quickly as possible from the danger areas to points as far away as possible, and by choosing the most protected routes These objects must be reconciled with two overriding considerations (1) that the work of the country must go on, and (2) that treatment and protection of casualties cannot be allowed disproportionately to affect the protection of the general public

In working out an organisation to comply with these conditions it must be remembered that circumstances will vary from time to time, and that the relative importance of the two objects and the urgency of the overriding considerations will vary with them It is, therefore, of first importance that the organisation should be flexible so that it can meet the varying demands It should be arranged in advance so as to allow of rapid change, for when the conditions under which an organisation has to work are imposed from without a cast iron organisation is a bad organisation

The one unchanging datum that we must be prepared to face in air raid conditions is that everything will be changeable, variable and unexpected But this is no excuse for inactivity, on the contrary, we must do everything possible to build such an organisation as will be capable of working under such variable conditions This organisation, in other words, must be perfectly elastic It should be adequate to cope with the maximum number of casualties, and yet elastic enough to expand still more at a moment's notice And not only to expand it is just as important that it should be able to shrink without any loss of efficiency It is clear that as the military protection of London reaches a higher degree of efficiency, and as the scale of attack falls off, the number of casualties will decrease, and then it would be wasteful to maintain all the material and personnel of the medical service in London, rather than to send them to a zone where they are more urgently required Re establishment to meet a reintensified scale of attack must also be possible

It is assumed that in any long term conditions there will be in operation a sound organisation of deep shelters and evacuation, and that the number of casualties will be relatively small As a corollary there will be a sufficiency of surgeons and other skilled personnel There will be plenty of transport and so it will be possible to pick the best of alternative methods Communications—underground telephone cables, short-wave wireless—will be protected Hence organisation can be relatively precise, and more or less laid down in advance to *meet all the possible alternative circumstances*

CLASSIFICATION

In any system of casualty clearance more capacious than that in use for peace time street accidents classification is of cardinal importance Indeed, if more than one casualty is carried into a hospital at a time, even in peace, classification is immediately the first action taken The reason is obvious A surgeon can only attend to one patient at a time, to decide which patient should be attended to first is classification All experienced military surgeons agree that this classification is the most important problem in casualty clearance Classification is not a thing that takes place at one point and one time only It is done when the patients are first seen by an uninjured person, and it is repeated at each stage in their progress until they have reached the point where their recovery will be completed and have there received final surgical attention It follows that the more accurate the first classification the better And as skilled surgical treatment must of necessity be preceded by skilled surgical classification, the sooner casualties are classified by a surgeon the sooner urgent cases can be operated on The proportion of really urgent cases which require operation at the earliest possible moment may be small, but such cases must be taken into consideration, and there is therefore reason, other things being equal, for moving the skilled classification as near to where the casualties are taking place (both in time and space) as is compatible with the other circumstances

Another reason for moving skilled surgical classification up is that ideally a wound should be dressed as soon after it has been sustained as possible, and the dressing should not be removed for any purpose whatsoever until the patient is about to go on to the operating table This cannot be done unless the first classification is skilled and accurate and precedes the application of the first dressing

But classification must be adequate for the point in the line of clearance where it is carried out If it is supposed to be skilful surgical classification it must be that If it is not it is of little value Classification by first-aiders is useful and good provided that it is elementary and such that the first-aiders can carry it out. To be concrete: a first-aider can upon occasion be called upon to classify cases into corpses, wounded and non-wounded; he should be able to divide patients into those he himself can classify roughly and those he is quite unable to classify. He should not go much further than this His classified cases can be sent home, to the surgeon, or to the mortuary. They *cannot* be sent direct to the operating table Nor can some of them be evacuated long distances and the rest evacuated short distances: further classification must take place It follows that there is no advantage to be gained from moving the surgical classification right up to where the casualties are occurring if the conditions are such that the surgeon, in the interests of his patients (and his own safety) cannot do an accurate job. But we have already seen that if classification can be moved up it should be We have therefore arrived at the important conclusion *that, as the occasion warrants, classification must be* moved up or made to keep back at a point of safety. Provision must be made for both, though the point of safety must, of course, be as close as is practicable.†

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* Since the publication of articles on this subject by two of us (*Brit med. J*, Suppl, Dec 31 1938 and Jan 21 1939) new data have become available Consideration and discussion of this information have caused us to modify some of the views set out in those articles.

CLASSIFICATION EVACUATION POINTS (C E P 'S) AND MOBILE CLASSIFICATION UNITS (M.C U.'S)‡

These considerations mean that a flexible organisation of C E P.'s and M.C U.'s is necessary. The C E P. should be a point on a line of evacuation, fully protected from high-explosives and gas It should have a very large space available for classification, rooms and equipment for operating, and surgical and other staff to classify, to operate, and to man the M C.U.'s It should have beds for the treatment of cases which cannot be moved, and it should have adequate decontamination arrangements We have been forced to the conclusion that in almost every case the *present hospitals are utterly unsuited* to act as C E.P.'s. They are not only unprotected; in most cases they are quite unprotectable Moreover, they are usually in the wrong places, away from railway lines, and with impossible approaches.

The C E.P should be in charge of an area medical officer who should be executively responsible for the passive defence in the area served by his C E P. This should include casualty- and rescue-services, decontamination and kindred functions, but would naturally not include warden's services, shelter services, and so on.

The M.C U. should consist of a team of classifying officers (who should be experts in surgical diagnosis) and ancillary personnel, adequately mobile in their own transport, capable of moving right up to the scene of damage and carrying out classification (only) on the spot. The M C.U 's should be based on the C E P.'s and their transport should be kept in adequately protected garages The teams manning the M C.U 's should, of course, be part of the surgical classifying staff of the C.E P. Staff would then not be wasted by remaining idle

There should be adequate ambulance transport of a suitable type available at the C.E.P 's We do not propose to discuss ambulances in this article, but it is almost self-evident that the light ambulances used for collecting casualties must be located at the C.E P. and controlled from there, and that ambulances must *imply stretcher-bearer-dressers.* Evacuating road-transport—i e , buses and the like—should be available to the C E.P. on demand, with a minimum constantly at hand.

The C.E P. should be on an underground railway line and on a satisfactory road-evacuation route, for there are advantages and disadvantages in both methods of evacuation, for example:—

Road.	*Rail.*
Liability to congestion Slow traffic.	Certain lines might be kept clear for surgical trains, therefore, quick traffic
Suitable for short distances.	Suitable for long distances.
Even the best sprung ambulances on the best roads are *uncomfortable at any* but low speeds.	Owing to greater comfort trains can travel quickly.
Short time to load, rapid dispatch.	Long time to load full train. (With Diesel engines smaller surgical trains might be used.)
Difficult to attend to wounded en route Can be stopped to attend to wounded.	Easier attention Full-size trains cannot be stopped.
Wounded can be distributed in small numbers to various places	Trains are suitable for serving hospital towns

WORKING OF A C E P.

The area medical officer (A M O.) would be immediately informed when damage had taken place in his area. He would be kept informed of the general situation both in his area and along his possible lines of evacuation Taking into consideration all relevant factors—the scale of attack, number of casualties, probability of further attack, state of the roads in his area and along his lines of road and rail evacuation—he would decide whether to send out ambulances and M C.U 's or ambulances alone If ambulances went out alone, then all wounded would be brought to the C E P. and dealt with there If M.C.U 's went out with the ambulances, the responsibility of deciding which cases should be brought to the C.E P and which should be evacuated direct by road would rest with the surgeon in charge of the M C U 's

Arrived at the C.E P , casualties would be accurately classified and either prepared for evacuation or sent to the immediate treatment beds Evacuation from the C E P would be by hospital train or by road, according to the exigencies of the situation. In our opinion long-distance evacuation where it is possible is much to be preferred to short-distance evacuation—it is better to send a patient 200 miles from London rather than 20 miles.

The A.M O. would be in full executive control of his C.E.P. and of the casualty and other related services in his area He would therefore have to be a man of considerable organising ability. He would have a staff of competent experts such as a consulting surgeon, a railwayman, a road-transport man and engineers. He would have to keep au fait with the full situation and be responsible for ensuring that evacuation flowed smoothly and rapidly, that la-beds were properly used, and that the superior authority was kept accurately informed of the position at his C E P and in his area

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† Another reason for having facilities for classification above ground is that if the main classification point is underground beside a tube line, time might be lost in taking patients there if those patients had immediately afterwards to be evacuated by road

‡ The names given here may not be the best possible; they are chosen because they describe the function of the units mentioned, and in order to avoid confusion with units in other schemes which have been elaborated.

DRESSING STATIONS§

The dressing station (D S) has not been mentioned in this organisation because it is not a primary unit It is, however, an important adjunct and provides one method of ensuring flexibility In a long term scheme there will be a system of deep shelters Ideally this system should be intercommunicating and should also communicate with the C E P 's It is obvious that each shelter or group of shelters should have in it a place where medical equipment would be available and where first aid and decontamination could be carried out In a long-term scheme these would be the D S 's Casualties finding their way into the shelters could have first aid treatment there and then be passed underground to the nearest C E P Possible circumstances where this system might be deliberately used by the M O in charge of the M C U 's or the M O in charge of the ambulances will readily suggest themselves In a short term scheme the D S 's become of considerable importance, as will be seen later

SUPERIOR ORGANISATION

The key point of the scheme around which the entire organisation should revolve is the C E P There must, however, be a superior organisation In a long term scheme this would seldom be called into executive action, its function would be largely informative It would only have to take action in the unlikely event of any part of the local organisation breaking down It would then have to make alternative arrangements by designating one or more C E P 's to serve the area of the one which had been put out of action or which was in danger of receiving more casualties than it could deal with The exception to this rule would be that the superior authority would have the responsibility of moving M C U 's, surgical teams, ambulances and ambulance trains from one C E P to another, or from more distant places

* * *

The scheme we have outlined seems to us to meet the essentials of the problem as well as any that has yet been put forward It ensures that treatment will be the best and earliest possible in the particular circumstances and that it will not be delayed in order to protect the casualties when such protection is not necessary On the other hand, it ensures that when protection is necessary it will be given without delay, and may, in exceptional danger, be given exceptionally quickly (by using the D S 's) It takes the overriding considerations properly into account It is in essence *flexible*

A further point in its favour is that it does not depend upon impossible feats of organisation The A M O is called upon to be a competent organiser, but he is not called upon to be an organising genius all that he will require for success will be accurate and continuous information A scheme which depended upon an unlimited supply of geniuses would fail in the first ten minutes

Short-term Policy

We propose now to set out the short-term data, and to see how the long term scheme must be modified to meet them If the resulting scheme proves to be workable there will be strong presumptive evidence that it is the scheme of choice It should be stated here, however, that in our considered opinion unless there is a proper system of deep shelters and evacuation no medical organisation, however ingenious and however courageously worked, can be immune from possible breakdown So far as we know every responsible member of the medical profession who has expressed himself on the subject is in agreement with this statement

SHORT TERM DATA

(1) Conditions of safety will vary in each district

(2) There will be few deep shelters

(3) There will be very many casualties

(4) Surgeons and ancillary personnel will be insufficient

(5) Transport will be scarce

(6) Telephone communications will be relatively unprotected and short wave wireless unavailable in any quantity

(7) Organisation will therefore have to be the most flexible possible, and no method of attaining the objects which is compatible with the overriding considerations must be left out of account

To take these points in order —

(1) Varying conditions must entail local variations in the scheme, and where there is a high probability of large numbers of casualties extra provision will have to be made

(2) It will not be possible in a short-term scheme to have specially constructed C E P 's, where they cannot be found in existing tube stations, or in tube stations enlarged for the purpose, they cannot be had at all. What then is the alternative? The best alternative is a steel framed building—e g , garage, warehouse or factory—with its basement strengthened and protected against anything but direct hits In a modern steel framed building of many stories only an armour piercing bomb would be likely seriously to damage the basement, even by a direct hit It is probable that few armour piercing bombs will be used, so that though the alternative C E P is a bad second it seems to be possible

(3) How can the greatly increased number of casualties be dealt with? The only way is by making classification as efficient and as rapid as possible This implies more classification space at the C.E P , but it also implies more surgeons and classifying surgeons, and these there will not be

(4) Shortage of surgeons will have to be met, so far as possible, by loading the balance in favour of evacuation and by using the very best surgeons for the job of classification, the other surgeons would be used to the best advantage at the base hospitals or in hospital towns, where they would be fully employed all the time and where each man would be doing the work he was best suited for

(5) Scarcity of transport is to be met by increasing the flexibility of the evacuation line In other words, the balance of decision will be loaded in favour of the form of transport which is freest

(6 and 7) The vulnerability of communications is of fundamental importance, for the success of the short-

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§ We have dropped the name of first-aid posts because the first-aid post has been so widely publicised that its would be functions might be confused with those which we consider essential for a dressing station The first-aid post seems to be dependent upon the concept of walking wounded We cannot see that this concept has any basis in reality as a measure of the gravity of the injury for some lightly injured cannot or will not walk whereas some seriously injured can and do There is at present a patient in hospital who has been there for the last six months and who walked 8 km with four bullets in his thorax Had he had a relatively minor injury to his foot he could not have walked so far term scheme must depend on its flexibility, and flexibility is entirely dependent upon communications It is obvious that an enormous effort should be exerted to ensure that communications are improved as quickly as possible

The short-term scheme will, therefore, differ from the long-term in four ways First, the C E.P 's will nearly all be in the basements of steel-framed buildings. They will have more classification space and relatively smaller operating space and equipment. Beds for the immediate treatment of casualties will probably have to be detached to other buildings (To hospitals, if suitable hospitals are available, of which there are very few. Unsuitable hospitals will be completely closed down, and the public informed. The public will not be told where the immediate treatment of casualties is being carried out; this is to avoid panic-stricken crowds breaking in and disorganising the work) Steel-framed hotels and blocks of flats are in most cases eminently suitable for rapid conversion Secondly, each major air-raid will be a problem in organisation; the A M.O. will have a more difficult job Thirdly, the superior authority, instead of intervening only occasionally and in exceptional circumstances, will have to do so regularly, and in most cases Finally, direct underground collection of casualties from D S 's to C E P.'s will, of course, be impossible. The D S 's will be located in steel-framed buildings, in tube stations if possible, and other relatively safe places It will be necessary to use them to the full, however, as advanced classification posts and as decontamination stations It may be necessary to turn over the functions of a wrecked C E P. to one or more D.S.'s.

* * *

We think that this modified scheme is the best makeshift available. Given intelligent administration by the superior authority and adequate communications it would not be the first of the country's essential services to break down It is as flexible as possible. It balances the two objects of our long-term policy fairly well It reduces the exposure of those dealing with casualties to a minimum. It does not make impossible demands on the country's transport or other essential services, and the demands that it does make are such that they can be met by the parts which are under least pressure Nevertheless, it should not be forgotten that it is only a makeshift. It should be set up immediately, but it should forthwith be modified more and more towards the long-term scheme, the vital points being the first to be fully protected We do not advocate peace of mind on this short-term scheme—in the light of recent technical reports the long-term scheme is thoroughly practicable. Nothing less will provide the adequate medical organisation for which every patriotic doctor must honestly wish.

Conclusions

Long-term scheme—(1) Fully protected Classification Evacuation Points should be built These should be carefully sited with lines of evacuation by rail and road, and should have plenty of space for classification, facilities for the treatment of the relatively small number of casualties who would have to remain in the danger area, and adequate staff They should be the medical headquarters for the areas they serve (2) The present hospitals should be closed; most of them are intensely dangerous and even the best are not safe enough for a long-term scheme (3) There should be Mobile Classification Units consisting of teams of classifying surgeons and their staff who could go to the scene of bomb damage and classify on the spot, if conditions allowed. (4) Both road and rail evacuation of casualties should be arranged for, so that the route best suited to the circumstances could be used (5) Dressing Stations should be ancillary rather than primary units in the organisation (6) There should be an effective superior organisation to coördinate the work. (7) The entire organisation should be highly flexible, to meet rapidly changing circumstances

Short-term scheme—Many of the points of the long-term scheme may take many months to put into operation, but there is a great deal which can be done at once (1) The Classification Evacuation Points should be put in steel-framed buildings, and not in old and dangerous hospitals (2) The hospitals should be closed. (3) Flexibility is even more important in the short-term scheme than in the long-term, and attention should therefore at once be directed to the improvement of communications

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TUBERCULOSIS IN WALES

REPORT OF THE COMMITTEE OF INQUIRY

On Tuesday appeared the long-expected report on the anti-tuberculosis service in Wales and Monmouthshire The committee, which consisted o Mr Clement Davies, K C, M P., and Dr. F J. H Coutts, C B, was appointed in September, 1937, b Sir Kingsley Wood, then Minister of Health, at th request of the King Edward VII Welsh Nationa Memorial Association

Tuberculosis is a relatively more serious problem in Wales than in the rest of the country; the decreas in mortality from tuberculosis has been less in Wale than in England or Scotland. The excessive mortality in Wales occurs among young adults aged 15–25 and to a lesser degree in the *age-group* 25–45 In the former group the mortality-rate has been practically stationary since 1911–20; indeed in the case of females it has risen slightly. The female rate in this group is 67 per cent. higher in Wales than in England and 60 per cent higher than the male rate in Wales Seven of the Welsh counties (Caernarvon, Merioneth, Anglesey, Cardigan, Pembroke, Glamorgan, and Carmarthen) show the highest average crude death-rates over the 7-year period 1930–36 of all the counties in England and Wales There is evidence of the existence of "black spots" in many of these counties and in Wales generally

A fatalistic outlook towards tuberculosis is particularly strong in Wales and still leads to the concealment of the disease and considerable delay in getting patients to seek medical advice. For practical purposes racial susceptibility *per se* is a minor factor in causing high mortality from tuberculosis in this country and there is no reason for a fatalistic outlook If there is any racial susceptibility, that is surely, the committee remarks, an additional reason for more vigorous endeavour to deal adequately with other controllable factors In many areas in Wales deplorable conditions exist in regard to housing, nutrition, and conditions in schools; these explain only too well why the incidence of tuberculosis has not decreased as rapidly as might be expected.

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1 Ministry of Health: Report of the Committee of Inquiry into the Anti-Tuberculosis Service in Wales and Monmouthshire. London H M. Stationery Office Pp 291 4s 6d.

One of the most effective preventive measures against tuberculosis is the segregation of the infected person, particularly the advanced case with positive sputum Obviously the importance of this measure is greatest in districts in which houses are small and insanitary and the whole environment is unsatisfactory The committee found, however, that it is in those areas in which housing accommodation is bad and home isolation impracticable that there is most reluctance to take advantage of hospital provision and a tendency for advanced cases to demand discharge from hospital

WELSH NATIONAL MEMORIAL ASSOCIATION

This association, which is responsible for the treatment of tuberculosis in Wales in sanatoria and dispensaries, has the status of a national scheme and the unique advantage of appealing to national sentiment The inquiry made it clear that a scheme on a national rather than a county basis possesses solid advantages It permits of the provision of special institutions for different types of tuberculosis on a scale impossible as a rule for individual local authorities and it makes it easy to obtain the services of consultant specialists of high standing It offers men who are interested in clinical medicine a career with opportunities of advancing in status and salary and of becoming recognised experts in tuberculosis

The national scheme has, in the committee's opinion, suffered from the tendency on the part of the community to look on treatment as the beginning and the end, and to forget that the main line of preventive effort is outside the sphere of the tuberculosis officer But these difficulties would not be met by breaking up the national scheme, transferring the dispensary service, and leaving the association as a mere hospital providing authority It would still be as necessary and as difficult to secure adequate coöperation between tuberculosis officers and local authorities As regards hospitals fully equipped for surgical operations it is considered that three hospitals would meet the need of Wales, in view of the scattered population, smaller hospitals of a simpler type would be valuable adjuncts to these Institutions of 50 beds in each dispensary area might be provided for *(a)* observation, *(b)* education in mode of life, and *(c)* prolonged segregation They would fit in well with any general regional hospital schemes But the committee has grave doubts about spending large sums in improving or extending existing unsuitable institutions, as soon as substitute beds become available some of these might profitably be closed unless they fit in with the general scheme already outlined

The actual waiting list of the association is 300–350, but the potential waiting list (estimated from particulars prepared by the tuberculosis officers) of those who ought to be in hospital for observation or treatment is nearer 1400—which means that 700 new beds are needed The higher figure works out at 121 beds per 100 deaths, which is above the figure for England but considerably lower than in Scotland and in certain overseas countries There is room, as suggested by the association, for a new hospital of 200–250 beds in the Swansea district, but if this is provided it is doubtful whether the South Wales Sanatorium need be fully equipped for thoracic surgery

WORK OF THE DISPENSARIES

That the medical staff of the association are recognised by general practitioners as experts is shown by their readiness to send doubtful cases for consultation the proportion of such references per 100 deaths is higher than in England There seems to be a tendency in Wales to rely on X ray examination rather than that of sputum Both methods should be fully employed The tuberculosis officers do more home visitation than in England, health visitors do less, and the committee regrets it Neither country has a good record for the examination of contacts, and in Wales, as elsewhere, it is precisely the young adult who is most reluctant to present himself for examination The efforts of all concerned—family doctor, tuberculosis officer, medical officer and health visitor—should, the committee feels, be directed towards extending the range of contact examination The interest of the tuberculosis officer should not end with his dispensary and residential cases, anyone who has come under his observation should remain his concern after systematic treatment has reverted to the general practitioner

In 1936 53 6 per cent of new adult patients diagnosed as tuberculous were sputum positive on first examination and of these half were advanced cases, 55 per cent of young adults, aged 15–35, were sputum positive on first examination It is recognised that late notification may be due to the delay of the patient in consulting his doctor at the first onset of illness, but there is still a tendency in Wales to delay notification If, the committee remarks, it were more generally realised by practitioners that it was as much the tuberculosis officer's job to eliminate as to diagnose the presence of tuberculosis, much valuable time would be saved Moreover, if steps were taken more frequently, in cases of bronchitis, asthma and persistent colds, to exclude tuberculosis by X ray and sputum examinations, a considerable number of cases of tuberculosis would be recognised at an earlier stage Some practitioners whose experience in tuberculosis is based mainly on advanced cases are apt to look lightly on a case which does not present the so called classical symptoms

PREVENTIVE MEASURES

In large areas in Wales the responsibilities (under the tuberculosis regulations) of local authorities for discovering the source of infection, disinfection, and the like do not appear to be properly realised Trained health visitors appointed by the authorities are required in every area for investigation of environmental conditions, with full coöperation between the M O H and the tuberculosis officers Many local authorities have not taken proper advantage of the powers and assistance given by Parliament in the matter of housing In the rural areas, villages and small towns there are hundreds of houses which are *unfit for habitation* and in the more remote counties the old fashioned Celtic type of cottage may be found in which families live under the most primitive and often overcrowded conditions Whilst giving full weight to the special difficulties of the rural areas the *committee is of opinion that most rural authorities have fallen far short of their obligations*

There are schools still in use in Wales in which the conditions lower the vitality and lessen the resistance of children to disease The committee would like to see such schools closed and more attention paid generally to heating and sanitary arrangements and facilities for drying wet clothes There is also scope for much improvement in the provision of milk and meals in schools the standard in these matters should be high and uniform throughout Wales

It is of immense importance to ensure good nutrition during school life as a safeguard against the stresses of early adult life In Wales, especially in the rural areas, recent changes in food habits have not been beneficial; on the whole, nutrition is not so good in the north as in the south, and it is worst in the western rural counties. Insufficient use of milk is one of the serious defects. The garden is neglected and few housewives take the trouble to cook vegetable soups and stews The staple diet is tea, bread and butter, sometimes with jam, supplemented by prepared foods; practically no green vegetables are consumed Poverty is by no means the chief factor in malnutrition in Wales, wrong choice of foods, ignorance and carelessness being much more responsible Witnesses who stressed the importance of poverty *per se* came from areas where the rents were high There is need in Wales, as elsewhere, to educate the housewife in the purchase, preparation and cooking of food.

ADMINISTRATION

The committee finds great disparity in Wales among local authorities in their performance of public-health services and in realisation of responsibility. The report draws special attention to the poverty of many areas of local administration Weak administration is chiefly to be found in areas of small population with inadequate resources; apart from the stimulus of outside influences it finds little or no hope of advancement in vital matters affecting health Finally disappointment is expressed at the small effort made in Wales to secure the appointment of full-time medical officers of health

MEDICINE AND THE LAW

No Desertion During Insanity

THE Matrimonial Causes Act gave a right to petition for divorce where the respondent has deserted the petitioner for three years without cause. In Williams *v.* Williams, decided last week by Mr. Justice Langton, the respondent had spent part of the three-year period under restraint in a mental hospital. An insane person is incapable of forming any criminal intent, but it was suggested on behalf of the petitioner that in a civil matter (such as divorce proceedings) the court might be justified in inferring that the desertion would have continued for the three-year period if the respondent had not been insane. The judge found himself unable to draw any such inference. Matrimonial desertion is a wilful and conscious act; an insane person is incapable of mental or moral activity.

The husband, after nearly ten years of married life, left his wife in May, 1933. On May 23, 1934, the magistrates decided that he had deserted her and was neglecting to provide her with reasonable maintenance A month later he was certified under the Lunacy Act and placed under restraint He has since remained under restraint in a slightly deteriorating condition of mental health. There was one leading case (Drew *v.* Drew) which seemed to be in the wife's favour. Mr. Drew left his wife, absconded to New South Wales to escape arrest on a charge of embezzlement, was brought back to England and was sentenced to 10 years' penal servitude In the divorce court it was held that Mr. Drew, at the time of his flight, meant to desert his wife and did in fact desert her, and that the period of desertion would continue even though he had been brought back to England in custody The court, in Mr Justice Langton's phrase, refused to allow the desertion of Mrs. Drew to be interrupted by the mere misfortune of incarceration. It was possible, however, to distinguish the case of Mr Williams from that of Mr Drew. It was not the physical restraint placed upon Mr. Williams which constituted the real bar to a decree of divorce for desertion. The bar was the fact that, unlike Mr Drew, Mr. Williams was (while insane) incapable of the intention to desert or to continue his desertion A man without a mind cannot make up his mind to remain absent from his wife. But although the judge could not grant Mrs. Williams her decree for three years' desertion, he drew attention to the prospect that she will presently be entitled to petition on the ground of five years' insanity.

PARIS

(FROM OUR OWN CORRESPONDENT)

EPIDEMIOLOGICAL ASPECTS OF THE SPANISH REFUGEE PROBLEM

THE influx of Spanish men, women and children as refugees into France in the past few weeks is described by all eye-witnesses as indescribable Some day, when the inhibitions of politics have disappeared vividly truthful accounts will no doubt appear in print. It is, however, already permissible to discuss openly certain epidemiological problems arising out of this situation. In the *Siècle Médical* for March 1 Prof. P. Chavigny of Strasbourg writes of the possibilities of a serious outbreak of typhus among the Spanish refugees; but interesting and timely as his communication is, its tone is that of a postgraduate lecture—a professional rather than a journalistic achievement A more disquieting communication is one by Dr. Jacques Sautet, of the Institut de Médecine et Pharmacie Coloniales de Marseille in the *Presse Médicale* of Feb 25 He draws attention to the potential importance of Spanish recurrent fever which exists in North Africa as well as in Spain, but which has hitherto been unknown in France It was discovered in 1922 by Sadi de Buen, and its *Treponema hispanicum* is transmitted to man by a tick, *Ornithodorus erraticus.* As this tick is unknown in France, the possibility of the disease developing here would have seemed highly improbable had not A. Sergent shown in 1933 that the same germ can be transmitted by a dog's tick, *Rhipicephalus sanguineus*, which, when the fancy takes it, bites human beings Now this tick abounds in the south of France and farther north. With the advent of hot weather, this tick should be watched Another danger foreseen by Dr. Sautet is that of malaria, which is endemic in certain parts of Spain As he remarks, the refugees have by no means come only from Catalonia, and some of them may well be sources of malaria, particularly among ill-nourished children. He recalls in this connexion the recrudescence of malaria in Corsica during the late war when its hospitality was enjoyed by Serbian refugees.

ANTOINE BÉCLÈRE

A picturesque figure disappears with the death of Dr. Antoine Béclère at the age of 82. In 1893 he seemed to have mapped out his career for life as a bacteriologist, and he was already doing important work on vaccination and the other problems of smallpox when he was so intrigued by Röntgen's discovery in 1896 that he threw overboard all his earlier laboratory work and devoted himself exclusively to radiology. As one of his biographers has said, to analyse the radiological work of Antoine Béclère would be to pass in review all the medical applications of X rays. The French Academy of Medicine elected him a member in 1906 and its president in 1928, and he was the founder of the Society of Medical Radiology. His best known work was that on the radiotherapy of hypophyseal tumours and of uterine fibroids. His interest in research did not prevent his devoting much time to teaching, and during the war he acted as director of the radiological laboratory of the Val de Grâce Hospital.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index.

FROM A PART TIME PROFESSOR

III

THE recent election of Pope Pius XII reveals how deeply steeped in ancient tradition are the by-laws of our own Royal College of Physicians. It, too, elects its president without any formal proposal or nomination. On the day after Palm Sunday the fellows assemble. Each fellow writes down and places in a large silver urn the name of one of the fellows for whom he votes as president. In order to ensure that the president shall be "as required by the Charter of Henry VIII, a prudent person and one skilled in the science and practice of Physic," only fellows of at least ten years' standing are eligible. If one of the fellows receives two thirds of the votes, he is elected; otherwise, the two names receiving the highest number of votes are balloted for. Except for the last provision the procedure conforms to that of a papal election. The selection of the president of the Royal College of Surgeons follows the more modern practice of electing him from among the members of its council by ballot. If no absolute majority is obtained a second and, if necessary, subsequent ballots are taken; in each successive ballot the name which receives the smallest number of votes in the preceding ballot is omitted until one name is given an absolute majority of the votes of the members of the council present at the meeting, whether voting or not. The relative merits of the two procedures need not be argued. Both in the past have succeeded in giving us presidents who not only fill their high office with becoming dignity but are also wise in counsel. But there is indicated a tendency which was noted over a hundred years ago in the *London Medical Gazette* (Feb 18, 1837) which wrote of the College of Surgeons thus: "The existing Council have shown their determination to keep pace with the march of intellect and the improvement of the times. In these respects—we mean setting aside ancient prejudices—in gathering wisdom from passing events—and in rendering their institutions available to great national objects—we must say they have far outstripped their elder brethren in Pall Mall, and accordingly are their character and influence as a public body proportionately greater." I hesitate to subscribe to all the implications of this outspoken comparison but in one small instance would it not be wise for the Royal College of Physicians to follow the example of its younger relation? Only a little over half its fellows live in London so why not indicate, by changing the name to the Royal College of Physicians of England, that it is a national and not a metropolitan institution? It was in 1843 that the title of the Royal College of Surgeons was altered from "in London" to "of England"!

For some time Mr Nathaniel Gubbins's stomach has been silent. The *Sunday Express* no longer conveys its weekly heartburnings to an interested and expectant public. Perhaps its pleadings have passed Mr Gubbins by as "idle wind which he respects not," and it now lies

> "I' the midst o' the body idle and inactive
> Still cupboarding the viand,"

but resigned to the futility of registering its bitter and acid protests. Imagine then the interest aroused when I saw in a second hand bookseller's catalogue "Memoirs of a Stomach," written by himself, that all who eat may read; with notes critical and explanatory, by a Minister of the Interior, 1853. I hastened to its purchase and I have no regrets, for though it abounds in the verbal infelicities of its period and evinces a strong homœopathic bias (and who would not forgive the stomach for preferring the infinitesimal dose?) it wittily and unobtrusively conveys wise counsel. It has done much to soften the hurt of deprivation resulting from Mr Gubbins's stomach. It has done much to convince me that gastric humour, satire, and philosophy are generic rather than individual, and have altered little with the passage of time. In these memoirs I learned, for example, that the name stomach was of pure Saxon origin, being derived from the word "sto," to stow away, and "ach" or "hack," to break into small pieces; the consonant *m* is inserted for the sake of euphony. We have Dean Swift's authority for similar principles of etymology: "Achilles was the most valiant of the Grecians. This hero was of a restless, unquiet nature, and therefore, as Guy of Warwick was called a Kill Cow, and another terrible man a Kill Devil, so this general was called A kill ease, or the destroyer of ease; and at length by corruption, Achilles."

* * *

But my precious booklet not only laid bare most of the inner mysteries of the stomach, it revealed also the gastric origin of the *bagpipe*, a hitherto well kept secret which I feel should now be given to the world.

An early Nordic King, who was also a skilled magician, sailed with his retinue from his Scandinavian home to Scotland, where he established himself for a time in one of the larger villages. The natives thereof paid him homage and appeased him with offerings of cattle, hides, and other valuables. When he was about to leave Scotland and return to his own kingdom a brave but rash Pict, recalling the story of David and Goliath, craved an interview with the King. This was granted and the Pict ushered into the royal presence exclaimed, "Why, O Monarch from over seas, comest thou to levy taxes upon an unoffending people? But Thor and Odin whom thou servest, have permitted this arm to avenge my country, and, rash man, thy last hour hath come." With these words the stone from his sling descended like a thunderbolt on—the empty throne of the King The would-be assassin was so stunned that he made no attempt to escape and was borne into the inner chamber where on the throne sat the King as unconcerned as though he had not moved, and he spoke thus to the Pict. "It is ordained that if I pardon the villain who seeks my life, misery and war will light upon my people, and the portals of Valhalla will shut against me; therefore, thou must die In recognition of thy patriotism, however, I shall render thy death an easy one instead of sending thee to the torture-chamber, where the cries of thy suffering would charm the hearing of the Furies But their wrath must be appeased and the cries of agony which thou wouldst have uttered hadst thou been tortured must be perpetuated for ever throughout the land wherein thou dwellest Thus is thy fate sealed." With these words the King cast a powder in the Pict's face and he sank to the ground—a corpse. At the King's command the chief swordsman ripped open the body of the dead Pict and, carefully extracting the stomach and œsophagus, laid them on the ground before the throne of the King, who, uttering strange oaths and waving his wand, exclaimed, "Change thou thy form, O thing of mighty use when in the living clay, and on thy tube let there be stops and key-notes, and in thy bag let there be wind, and let the natives of this region have cunning to play upon thee, and let thy tones be ever as the shrieks of a tortured man, so that the Furies may be satisfied, and let thou be called now and hereafter *Bagpipe*, so that what I spoke may come to pass, even unto the letter." Having thus spoken the courtiers saw before them the first bagpipe and they raised it from the ground and sought a native to play upon it. When they found one they all rushed to their ship, stopping their ears, and never again did they set foot on the shores of Scotland

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Which leads me to ask if Shylock's reference, "And others, when the bagpipe sings i' the nose, Cannot contain their urine," indicates that Shakespeare was acquainted with musicogenic epilepsy?

PUBLIC HEALTH

Mental Health in London

THE mental-health services of the London County Council are so extensive—the council is responsible for the care of over 38,000 mentally abnormal patients—that the annual report,[1] detailed and informative though it is, cannot do more than hint at the variety of problems dealt with. One would like to know, for instance, why the greatest number of applications for admission has for several years always been during the month of July or August; why the incidence of new cases of mental disorder is highest in the Holborn, St Pancras, St Marylebone and Hampstead areas; why the proportion of voluntary patients who have to be readmitted in the same year as they left hospital is higher than that of certified patients, and whether this is directly related to the higher proportion of annual discharges to admissions in the voluntary group. Other interesting questions are the types of patient mainly concerned in readmissions, the percentage of which to patients "discharged recovered" is remarkably similar for all the mental hospitals The figures since 1895 indicate that more than 30 per cent of those so discharged relapse sooner or later, 11 per cent doing so within twelve months after discharge It is also noteworthy that just on two-thirds of those "discharged recovered" last year were between the ages of 25 and 54, a slightly higher proportion than the admissions at this age-group bore to all patients admitted

Among many arrangements made in a more or less experimental way may be mentioned the provision (by the British Institute of Adult Education) of a series of lectures and discussions at St Ebba's Hospital, and the giving of a fortnight's holiday at the seaside during the summer to patients who had no friends to take them out on daily or week-end leave. Such items in the report testify that along with routine care and large plans of modernisation and development there is a concern for those minor amenities which make the difference between humane interest and impersonal institutionalism. This concern is evident in many passages, too, of the section of the report dealing with the mentally defective The council has for long maintained a number of occupational and craft centres for defectives who are under supervision or guardianship The admirable results are shown in a table of occupations followed by defectives under statutory supervision: 970 males and 976 females were in employment at the end of the year. The problem of accommodation for defectives grows more difficult, for there has been for many years an excess of admissions over exits in order to cope with this, 896 extra beds are proposed The net cost to the council of the care of defectives, both intra- and extra-mural, for the year was £554,000 the cost per head for those in institutions varied but was mostly in the neighbourhood of 30s

We have had occasion to remark, when commenting on previous reports of the L C C. mental health services, that the nomenclature under which diagnoses are recorded (table 25) is rather absurdly out of keeping with the remarkable progressiveness shown in every other section Even if official returns have still to be couched in a nosological language long obsolete, it would seem appropriate for the council to follow, in its own report, the current usage of its psychiatrists, which is that of their colleagues the world over.

Dr. Porter's Retirement

On Wednesday Dr. Charles Porter retired from the position of medical officer of health for St Marylebone which he had held since 1908, and it is fitting to put on record here something of what his tenure of office has meant to that great borough Porter, who was drawn into public health by Andrew Balfour, came to Marylebone from Finsbury (where he had succeeded Sir George Newman), and before that as assistant medical officer in two northern cities he had taken the initiative in school hygiene. In Marylebone, although he had nothing to do with the establishment there of the first infant-welfare clinic, he had much to do with the later developments in the care of mother and child The tuberculosis scheme was the first in this country and the open-air school in a band stand in Regent's Park made London aware that tuberculous children more than others require sun shine and fresh air. When these schemes were municipalised the borough went on to provide health centres and special clinics which included child guidance on the one hand and on the other the application of sunlight and massage and the hygiene of footwear. There was, it may be remarked, at no time any friction between these plans and the L.C.C. scheme for the medical treatment of school children. But the most concrete memorial of Porter's work may be seen in bricks and mortar. Had it not been for his success in persuading the L.C.C. of the safety of the one pipe system of drainage, neither Broadcasting House nor the Cumberland Hotel would now stand where it does; and those who remember the drab horror of Lisson Grove in its old days will see his face in the attractive blocks of flats which now cover the ground.

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[1] Annual Report of the Council 1937 Vol. vi. Mental Health Services London: P. S King and Son. 1938. Pp. 73 1s.

L.C.C. Whole-time Consultants

For several years the London County Council has considered increasing the efficiency of its hospital services by the appointment of whole-time specialists, but owing to the work involved in reorganising the hospitals little progress has so far been made. The council is, however, now to appoint a whole-time cardiologist at Lambeth Hospital and a whole-time fracture specialist at St. James Hospital, Balham. The cardiovascular unit at Lambeth has been an outstanding success. Beginning in a small way in 1936 it now has 50 beds, and it will probably be necessary before long to provide a similar unit north of the Thames. At the fracture unit at St. James' Hospital 735 inpatients were treated during 1937, and there is a large and growing outpatient department with provision for massage and the like. The specialist to be appointed will devote the greater part of his time to this unit and the rest to the supervision of other of the council's clinics. The salary of the new specialists, who may be appointed from either inside or outside the service, will be £1250 a year rising to £1500.

Infectious Diseases in the United States

The central department of the United States public health service differs considerably from our own Ministry of Health, for each state has its own public health service and makes its own laws, though the department has direct control over matters of national rather than local importance.

To the English reader the most interesting section of the surgeon general's annual report is the last, which deals with the changes which have taken place in the distribution and forms of the infectious diseases, for new varieties of the old diseases that trouble civilised communities in the temperate zones and diseases not previously recognised often originate in the United States. The report for 1938[2] describes several varieties of typhus which have not yet appeared in this country. Of these the most serious is Rocky Mountain fever, which year by year extends its range, though the number of cases does not increase and the disease is lessening in fatality. Last year Rocky Mountain fever was found as far east as Ohio and Massachusetts. Another disease which is spreading is pasteurellosis.

Plague was introduced into California, probably from China, some decades ago, and must now be considered endemic, though as a human disease it has not so far been alarming. The native ground squirrels were the first, and are still the main, reservoir of pasteurella, but last year plague spread to tree squirrels. Besides attacking new hosts the infection is extending geographically, for year by year fresh areas are discovered in which the rodents are affected. A few human cases occur annually, but the mortality has hitherto been low. It was therefore hoped that if plague became epidemic in man it would be in a comparatively mild form, but last year in a few instances the disease assumed the fatal pneumonic form, in which the infection can spread directly from man to man very rapidly. The presence of potential plague has been an anxiety to the United States health department for many years and this latest development will do nothing to lessen it. Poliomyelitis is shifting its age incidence. This has been happening in all parts of the world and is shared by other children's diseases, notably diphtheria. Most of the endemic diseases which in civilised communities mainly affect the young have mortality curves which run parallel to their incidence curves, but measles and whooping cough are exceptional in that their mortality curves remain peaked in the first two years of life in spite of the gradual shift of maximum incidence to later ages. Trichinosis is widely prevalent in the United States and extensive investigations have demonstrated that its incidence is as high as 17 per cent. of the total population. The report points out that the control of this disease necessitates state regulation of the garbage feeding of swine. Leprosy does not spread in the United States except to a slight extent along the Gulf coast, but Weil's disease, previously unsuspected, has been found to be endemic in many states, including New York.

Improved Dietary in Casual Wards

In accordance with an order[3] issued by the Minister of Health persons in casual wards which form part of a public assistance institution may now receive the same midday meal as the resident inmates of the institution, provided that this meal contains meat or fish. The casual ward dietary will moreover be made more palatable and less monotonous by the provision of a pint of tea with dinner; of jam, marmalade or treacle at supper; of meat in the midday meal handed to persons aged 12 years and upwards on discharge; and of cheese as well as bread and butter to children of 8 to 12 on discharge.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED MARCH 4, 1939

Notifications.—The following cases of infectious disease were notified during the week: Smallpox, 0; scarlet fever, 1050; diphtheria, 1110; enteric fever, 18 (20 "expected"); pneumonia (primary or influenzal), 1511; puerperal pyrexia, 221; cerebro-spinal fever, 60; acute poliomyelitis, 6; acute polio-encephalitis, 1; encephalitis lethargica, 5; dysentery, 42; ophthalmia neonatorum, 81. No case of cholera, plague or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on March 10 was 3335, which included: Scarlet fever, 639; diphtheria, 769 (carriers, 47); measles, 9; whooping-cough, 869; puerperal fever, 17 mothers (plus 7 babies); encephalitis lethargica, 300; poliomyelitis, 2. At St. Margaret's Hospital there were 22 babies (plus 11 mothers) with ophthalmia neonatorum.

Deaths.—In 126 great towns, including London, there was no death from smallpox, 1 (0) from enteric

(*Continued at foot of next page*)

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[2] Washington: U.S. Government Printing Office. Pp. 184. 60 cents.

[3] Statutory Rules and Orders, 1939, No. 242. H.M. Stationery Office. 1d.

LETTERS TO THE EDITOR

PREVENTION OF POSTOPERATIVE TETANUS

SIR,—We believe any reasonable person who reads your comments last week on the recent case of puerperal tetanus would gain the impression that you had difficulty in understanding how the tetanus spores in the pad could be the cause of the fatality, but that their presence was disturbing. Personally we have no difficulty and are, therefore, the more disturbed.

Our situation is as follows: Being known to be interested in tetanus, it has come to our knowledge that cases of postoperative tetanus are commoner than any one surgeon appreciates There is almost no mention of them in the literature except in relation to catgut. In any individual case it is impossible to prove that the infection derived from the dressing, but taking all cases together the evidence seems reasonably conclusive to us that it did. At any rate we feel bound to ask you to give publicity to the following matters.—

(1) Of recent years various wools have been introduced as surgical dressings Practically all are charged with tetanus spores and the spores of other anaerobes and aerobes. The use of determinative adjectives in connexion with these materials has led to the belief that "wood wool," for instance, only is in question. but the same applies to surgical white wool, though to a smaller degree.

(2) These materials are used as accessory dressings or paddings without sterilisation in the belief that if they are not in contact with the wound no harm can arise. But (*a*) if the wool is continually rubbed on the skin, as by a splint, an abrasion may be formed which may be inconspicuous but nevertheless a suitable nidus for germination, (*b*) if the wool is wetted by a nutrient fluid, tetanus bacilli do demonstrably grow and will then be in fluid connexion with the wound however remote.

(3) These materials are also used after sterilisation. It is, however, a fact that wool after undergoing the process of sterilisation as sometimes carried out is still contaminated with viable tetanus spores. In some cases sterilisation is carried out by someone who has no knowledge of the principles involved and is not overlooked by anyone who has. He does not know that a roll of wool is not easy to sterilise and that a parcel of wool can scarcely be sterilised at all

These three statements, made with studied reserve, reveal a situation which is not generally known to users of wool dressings and it is our hope tha publicity in your journal will lead to appropriat action.

We are, Sir, yours faithfully,

PAUL FILDES,
JAMES MCINTOSH.

Middlesex Hospital, W 1, March 13.

TOLERANCE OF PHENOL VAPOUR

SIR,—In their important paper on atmospher and surface sterilisation by aerosols in your issue o Feb. 25 Dr. Pulvertaft and his co-workers, referring t phenol vapour as a possible agent for the sterilisatio of air, state that "a concentration of phenol capabl of sterilising air is quite intolerable to human beings,' and that "a concentration in air is required whic no human beings could tolerate even for a few seconds" I do not know the source of these statements, bu as regards the amount of phenol vapour that wil effect surface sterilisation they are quite incorrect I have done many experiments in which pure pheno is vaporised by heat by means of a vaporiser manufactured by Messrs F. C. Calvert These experiments were performed in a room of 1400 c ft. capacity, and broth cultures of *B. typhosus* and several other organisms were spotted on to filter-paper slips and exposed in the room It was found that an amount of phenol of the order of 35 grammes per 1000 c ft capacity killed all these organisms with an exposure of one hour. Such a concentration of phenol is perfectly tolerable to man, the room may be entered immediately it is opened without inconvenience, and in one instance a mouse was in the room during the whole experiment, and suffered no harm In another instance a mouse was exposed to double this amount of phenol, again without harm, by exposure to the vapour of 85 g of Calvert's vaporising fluid A per 1000 c ft for an hour; this fluid contains 85 per cent phenol Messrs. Calvert inform me that office rooms and hospital wards with their occupants have been "fumigated" with amounts of phenol of the order of 15 g. per 1000 c ft for periods during several successive days without inconvenience or harm to the occupants

I do not think it is quite clear from the paper how the figures stated for the effective concentrations of the aerosols were arrived at. For instance, it is stated that chloramine-T is effective in a concentration of 1 in 12,000,000. Calculating by weight of substance to weight of air in volume treated, approximately 1/160 gramme of chloramine-T would give a concentration of 1 in 12,000,000 in a room of 2000 c ft capacity. Is this correct?

I am, Sir, yours faithfully,

Greenwich, S E 10, March 11 R. TANNER HEWLETT

STANDARDISED NAMES FOR ENDOCRINE PRODUCTS

SIR,—Endocrine therapy is difficult by reason of our comparative lack of knowledge of endocrine physiology and the uncertain results of the application of the findings of animal experiments to clinical medicine But these difficulties are increased by the multiplicity of names that are given to identical glandular products by the various drug manufacturers Some of these substances have a definite chemical structure and therefore should be known by a single name, as, for example, sodium chloride, which denotes NaCl. At the moment I can recall six different names

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(*Continued from previous page*)

fever. 4 (0) from measles, 1 (0) from scarlet fever, 19 (2) from whooping-cough, 26 (7) from diphtheria, 43 (13) from diarrhœa and enteritis under two years, and 284 (69) from influenza. The figures in parentheses are those for London itself.

The number of deaths attributed to influenza is maintained, the totals for this week and the nine preceding weeks (working backwards) being 284, 285, 255, 265, 210, 173, 223, 214, 144, 89 Of these 284 deaths 149 were reported from the South-eastern Area, Croydon contributing 7, Walthamstow 6, West Ham 5, 63 were reported from the Northern Area, Manchester and Sheffield each contributing 6, Leeds 5, 43 from the Midland Area, Bristol contributing 8, Nottingham 7, Birmingham 6; and 14 from Wales, Rhondda contributing 6, Cardiff 5 Fatal cases of diphtheria were scattered over 17 great towns, Darlington, Liverpool and Sunderland each reporting 2 Sheffield reported 3 deaths from whooping-cough The only death from enteric fever was at Nottingham

The number of stillbirths notified during the week was 240 (corresponding to a rate of 38 per 1000 total births), including 42 in London.

under which the œstrogenic compound is sold, and there may be many more

It would simplify therapy if the manufacturers would get together and standardise names which are applied to identical products, and it is difficult to see how they would lose in relation to each other if this arrangement could be made

I am, Sir, yours faithfully,

London, W 1, March 13 ALECK BOURNE

ERYTHEMA NODOSUM

SIR,—I feel that the evidence submitted by Dr Hall in your last issue is hardly sufficient to justify his statement "that these three cases of erythema nodosum are of tuberculous origin can scarcely be doubted" The presence of two conditions in the same patient does not necessarily imply that the one is the cause of the other Furthermore, it is not easy to make a definite diagnosis of enlarged mediastinal glands of tuberculous origin on radiographic evidence alone, nor is the significance of the Mantoux reaction in young children entirely beyond dispute It is not denied that some cases of erythema nodosum may have a tuberculous ætiology, but such cases occur infrequently It would be wise therefore to show that the incidence of the two conditions together is more than could be explained by coincidence

The examination of contacts of cases of erythema nodosum is a suggestion worthy of further consideration

I am, Sir, yours faithfully,

London S.E 1, March 12 J A BROCKLEBANK.

PRONTOSIL IN RENAL ŒDEMA

SIR,—The case of renal œdema treated with sulphonamide reported by Dr A W D Leishman in your issue of Jan 28 attracted my interest for I often encounter cases of very resistant renal œdema Lately I had to treat a similar case

A schoolboy of 11, previously healthy, was taken ill at the beginning of last November with an irregular pyrexia, headache, and epigastric pain These symptoms lasted for over a month, but by Dec 10 he was fit to go out of doors A week later he noticed œdema of the legs and puffiness of the eyelids He was then treated for a month by a general practitioner, who gave him a liberal protein diet When I saw him on Feb 2 his condition had become a great deal worse He was pale and looked ill and had extensive general anasarca Temperature normal, pulse rate 110, hæmoglobin 65 per cent, B P 125/80 He had a short systolic mitral murmur, the pleural cavities and lungs were clear, but there was a moderate degree of ascites The urine contained a large amount of albumin, granular and hyaline casts, and a few pus cells and red cells Throat and tonsils were normal I ordered him Alka dextrose (P D and Co), a tablespoonful every two hours, Mist alba every morning, and a diet of orange-juice, lemonade, and caraway-water After five days there was little improvement and the treatment was continued for three more days On Feb 10 the anasarca and albuminuria were still marked

Alka dextrose was then replaced by Calcium Diuretin tablets (Knoll), one tablet four times daily After ten days the reaction to treatment was still very slow.

I then decided to try Dr Leishman's treatment, though I was rather nervous of untoward effects Beginning on Feb 22 I gave one tablet of Prontosil rubrum four times daily On March 2 the boy came to see me and looked an entirely different person The œdema and ascites had totally disappeared The albuminuria was now reduced to a trace, the urinary deposit contained a few granular casts and very few pus cells Pulse-rate 90, B P 120/80, Hb 80 per cent The systolic mitral murmur had gone The boy was fighting for food Milk, milk puddings rice and toast were added to the fluids he was taking and prontosil was continued for four more days On March 6 his general condition was good and he was feeling very well

I agree with Dr Leishman that the dramatic recovery must be due to the effect of prontosil on the infected kidneys

I am, Sir, yours faithfully,

IBRAHIM ABDEL SAYED

Beni-Suef, Egypt March 8

STERILISATION OF SODIUM-BICARBONATE SOLUTION

SIR,—I am in agreement with Dr E P Poulton that solutions of sodium bicarbonate can be sterilised by heat, but I cannot regard his method as satisfactory I suggest that a much simpler and safer method would be the one recommended by the British Pharmaceutical Codex whereby the solution is placed in an air tight container and autoclaved at 115° C for 30 minutes The decomposition reaction is reversible on cooling and provided that no CO_2 is lost It is essential, therefore, that the container should not be opened for one or two hours after the temperature has fallen to normal and that the container should be *perfectly* sealed during autoclaving

When the container is a sealed ampoule, the conditions are perfect, but when a milk bottle type of container with a spring clip stopper, or a bottle with a screw cap or stopper is used, it is advisable to invert it with its neck below a solution of methylene blue during the autoclaving and subsequent cooling processes This will detect imperfect sealing The bottle with the spring clip type of stopper is not very reliable for this particular purpose

No alterations in the pH of the solutions will occur if these precautions are taken and the solution should be quite clear Should a slight flocculent precipitate form on standing it is from the glass which would be of an unsuitable quality

I am, Sir, yours faithfully,

H BERRY,

Dean College of the Pharmaceutical Society

Bloomsbury Square W C 1, March 13

CRANIAL RADIOGRAPHY —A course of lectures on cranial radiography will be given by international authorities in the Institute for Tropical Diseases at Antwerp from July 27 to 29 On the following day there will be a general meeting of radiologists and clinicians with a view to the foundation of an international society concerned with this branch of radiology Further particulars may be had from Dr R Thienpont, avenue Rubens, 30, Antwerp, Belgium

ROYAL HOSPITAL FOR SICK CHILDREN, GLASGOW —During the past year nearly 7000 patients were treated in the wards of the hospital and there were over 9700 attendances of outpatients Associated with the hospital is a team of workers connected with the university who are able to collect scientific information about the health welfare and treatment of children from this centre The ordinary income was less than the expenditure by £13 000 but this was more than met by the extraordinary income, so that there is a financial surplus of over £3000

PARLIAMENTARY INTELLIGENCE

ON THE FLOOR OF THE HOUSE

BY MEDICUS, M.P.

A BILL on London government was introduced into the House of Lords in February and is now being considered by a joint committee of the Lords and Commons. It is "A bill"—to use its own parliamentary phraseology—"intituled an act to consolidate with amendments certain enactments relating to local government in London." In plainer English it is a bill to consolidate existing laws concerning the London County Council, the metropolitan borough councils, their committees and officers, their powers to buy land, to borrow money, to levy rates to pay for services, to promote and oppose bills in Parliament and to elect their councillors, and a large number of other matters. The bill runs to 206 clauses and includes 8 schedules. The last of these is one listing "enactments repealed," the first being one of Henry VIII intituled "An Acte concnyng the amendment of Bridge in High Wayes" There are 55 pages of these acts, and the last is a part of "The Food and Drugs Act, 1938" It is this complexity of references, detail, amendments, and repealings that makes legislation difficult to understand Furthermore, this complexity puts such a bill almost entirely in the hands of expert draftsmen and departmental officials, and in order that those concerned may be adequately informed and able to take a clear line on matters of principle it involves the employment of special parliamentary agents

There are very many parts of this London Government Bill of great interest and among them some which especially affect the position of medical practitioners At present there exists in local government legislation a valuable power, frequently and habitually exercised, of coopting persons of special experience and knowledge on to the appropriate committees. This coöption is particularly useful on education and public health committees; but, whereas the London County Council and boroughs outside London may coöpt doctors or others on their health committee, the metropolitan borough councils may not. It is hoped that in the course of the passage of the London Government Bill through the House an amendment will be secured which will abolish this anomalous position. The power of coöption of doctors on to the metropolitan borough councils' health committee would be of great value, and medical men and women should have the opportunity of rendering this public service in the boroughs where they reside and where both their medical knowledge and local knowledge will be of most value.

The danger of the over-complexity of legislation and of "regulations" and "orders" arising out of legislation is shown in a curious and disquieting way in respect of the London County Council's arrangements and provision for the feeding of necessitous school-children. The London County Council in the days when Dr. Kerr was the school medical officer was a pioneer of school feeding Now the L.C C is considerably behind many other *local authorities* The L C.C has in its care about a tenth of the elementary school-children in England and Wales, but provides solid meals for only about 2 1 per cent of them, whereas in county boroughs 3 5 per cent. are provided for. West Ham and East Ham provide meals for about 10 per cent. and 8 per cent respectively, and they are areas strictly comparable with some of the poorer parts of London county The reason for this difference is not a difference in the nutrition of children favourable to the L C.C area but a difference in the "regulations" and procedure leading to a restricted method of selection of candidates for feeding and further regulations dealing with unemployment and public assistance. Here is a matter on which medical representatives on the L.C C or indeed on any public authorities in London can take an active and useful part in disentangling the coils of red tape which appear to be restricting unduly a necessary public service.

The Cancer Bill passed its third reading in the House of Commons in the early hours of Wednesday, March 8, having been introduced at 11 32 P.M after the end of a long debate on foreign affairs. At this third-reading debate an omission was corrected and the bill made applicable to Wales as well as England, and an interesting conflict of views was expressed with regard to the advertising of cancer cures. Mr. Leach moved an amendment to the bill to keep wide open the door of exploration in regard to cancer treatment and cure and gave voice to the anxiety which affects many as to the possible exclusion of "unorthodox" remedies. It was suggested that in closing the door of advertisement to the unorthodox "we may be dooming many to death who might be saved" Another member seconded this amendment as a believer in "nature treatment" Dr. Peters, a doctor of law and not of medicine, told the House that "there are very many people up and down this country who can cure, and have cured, cancer and who are not practitioners", for years he himself had been healing people of the disease. The amendment was opposed by Dr. Edith Summerskill, and this led to some lively interchanges between her and Mrs. Tate and Lady Astor. Mr. Rhys Davies, winding up for the Labour Party, spoke from his experience of the office of an approved society and said that "we know of tragic cases where faith healing has not meant a cure but has aggravated the condition which could have been saved by medical practitioners" Mr. Walter Elliot spoke against the amendment as Minister of Health, and it was negatived by 122 to 60 at 1 26 A M

The Ministry of Health were unwilling to yield on the question of the advertisement of cancer treatment, but have been unable to make the health point of view prevail with the even more important field of prevention of tuberculosis and other milk borne infections. The pasteurisation of milk appears to have been definitely dropped from the Government's milk programme. The question remains as to how it can be brought back again into political life. Must we wait for a further rise in the figures of tuberculosis or for some large milk-borne epidemic of another disease? Fortunately a number of local authorities are themselves so impressed with the importance of a "safe milk" policy that they are promoting bills to give them local powers of pasteurisation This is a good move and one in which doctors who are members of local authorities can play a useful part by initiating discussion on the pasteurisation of milk in their local councils and by pressing for the promotion of local legislation. If a number of local authorities press legislation on this matter, then finally the most timid of governments will be obliged to take action on a national scale.

FROM THE PRESS GALLERY

Cancer Bill in the Lords

MOVING the second reading of the Cancer Bill in the House of Lords on March 14 the Duke of DEVONSHIRE, parliamentary under secretary for the dominions, said that the bill was an administrative measure, primarily intended to promote the diagnosis and treatment of cancer rather than research into its nature and causes If more money was required for cancer research it could be otherwise provided—for example, by an increased grant to the Medical Research Council The Imperial Cancer Research Fund and the British Empire Cancer Campaign between them spent £90,000 annually on research, and a clinical cancer research committee had now been formed to investigate the 17,000 new cases of cancer admitted to London hospitals each year Arrangements were being made to secure adequate records of cases treated under the bill, but its main object was to make available the benefits of knowledge already acquired

Lord BALFOUR OF BURLEIGH moved an amendment expressing regret that the bill did not contain a provision for increased research into the cause and treatment of cancer The policy of the Government was, he feared, lop sided and incomplete The methods of treatment on which the Government were founding this great experiment were surgery, radium and X rays, and of these the last two were still in their infancy The current report of the Medical Research Council showed how very tentative the advance was, and how very far they were from having any certainty that even in early stages a cure could be effected It seemed to him unwise to be contemplating an expenditure of £600,000 or more on treatment which was tentative, when new methods were constantly coming into view that might supersede the methods to which they were now pinning their faith This great effort towards treatment should be accompanied by a parallel effort with further research, not only into radiotherapeutics, but into the fundamental causes of the disease

Viscount DAWSON OF PENN welcomed the bill on behalf of the medical profession, but there was in their minds one reserve which had just been eloquently stated by Lord Balfour, who was chairman of the Medical Research Council Here was a great opportunity for combating the scourge of cancer Cancer was a disease which discriminated little between one class of the community and another There had been a definite improvement and increase of knowledge in the treatment of the disease The bill was justified because it would bring to all classes and conditions of people the advantages of that knowledge But it was to him almost incomprehensible that a big scheme of this kind for extending the benefits of knowledge to the masses of the people should have been launched without a research scheme at its head, instead of allowing such a scheme, in some few years perhaps, to be affixed to its tail In a subject like this they needed a research unit at its head to explore new avenues settle differences of opinion, give light and leading to those centres which were concentrating upon routine, and who were compelled to apply themselves day by day to the patients who sought their advice Even looking at the matter from an economic point of view the cost of a research unit would be met many times over before two years had passed He besought the Government to start the movement with a research unit

Scottish Coal Refuse

In the House of Commons on March 10 the Public Health (Coal Mine Refuse) (Scotland) Bill was read a second time This measure seeks to amend the Public Health (Scotland) Act, 1897, with respect to coal mine refuse liable to spontaneous combustion Mr Mathers, who sponsored the bill on its introduction, explained that its purpose was to bring the law of Scotland in respect of these deposits into line with that of England and Wales

QUESTION TIME

WEDNESDAY, MARCH 8

Health Services in Kenya Colony

Mr DAVID ADAMS asked the Secretary of State for the Colonies whether the previous shortage of trained teachers in the education services, and of trained staff in the medical and health services of Kenya Colony had now been fully overcome; and, if not, what steps were being taken to this end —Mr MALCOLM MACDONALD replied Under present economic conditions it is quite out of the question for the Government of Kenya, or of any other African dependency, to provide all the trained medical and educational staff that could usefully be employed, nor do I foresee any possibility of fully meeting requirements until the African himself has been trained to carry out these services among his own people I hope that Makerere College will help considerably to provide this trained African personnel

Mr ADAMS I take it that the shortage is being gradually overcome?

Mr MACDONALD As far as financial considerations permit

Nutritional Surveys in the Colonial Empire

Mr MATHERS asked the Secretary of State for the Colonies whether a nutritional survey, such as that which was being carried out in Nyasaland, was contemplated in any other part of the Colonial Empire, and whether it was correct to regard this survey in Nyasaland as the first of a series —Mr MALCOLM MACDONALD replied The answer to both parts of the question is in the affirmative

Medical and Dental Naval Officers

In reply to a question by Mr PARKER, Mr SHAKESPEARE parliamentary secretary to the Admiralty, stated that among the naval officers who entered the service in the calendar year 1938 there were 35 medical officers (1st appointments) and 15 dental officers (1st appointments) There were also 4 entries of warrant officers into the medical branch

THURSDAY, MARCH 9

Control of Medical Supplies for Civil Defence

Dr SUMMERSKILL asked the Minister of Health if arrangements had yet been made in the event of hostilities for the governmental control of medical supplies and distribution to those areas which would be most vulnerable to attack from the air —Mr ELLIOT replied Yes, Sir Reserves of medical supplies for the treatment of air raid casualties are being purchased in bulk by the Government and will be distributed for storage, mainly at hospitals, in the area of each scheme making authority

Milk Pasteurisation

Mrs TATE asked the Minister of Health whether he would appoint a royal commission under a chairman of judicial experience to investigate the whole question of pasteurisation of milk in the light both of foreign experience and of statistical material now available, and to hear evidence from all sides —Mr ELLIOT replied I do not think that the appointment of a royal commission on this subject would serve a useful purpose

Diphtheria Immunisation

Mr DAVID ADAMS asked the Minister of Health whether, in view of the fact that immunisation was now commonly used in the prevention of diphtheria and that in certain areas this form of treatment was not in general use, he had considered the desirability of issuing a circular to local authorities upon this matter —Mr ELLIOT replied A memorandum on the production of artificial immunity against diphtheria was issued to medical officers of health in 1933 This memorandum is at present being revised with a view to its reissue

Mr LEACH asked the Minister of Health whether he would investigate, or request the Medical Research Committee to investigate, the diphtheria records of other countries besides the United States of America and Canada and particularly those of Sweden and Switzerland, in view of the fact that diphtheria had practically disappeared from those countries without immunisation —Mr ELLIOT replied: I am having such diphtheria records as are available for European countries examined with a view to ascertaining what light they throw on the value of artificial immunisation, and I will communicate the result to the hon. member As artificial immunisation against diphtheria has been more extensively practised in North America than elsewhere, the records of those countries are clearly the most useful for a study of its effects

Port Medical Officers: Defective Vessels

Mr. BEN SMITH asked the Minister of Health if he would give particulars of the nuisances and defects in vessels reported by port medical officers of health in respect of the year 1937, showing the number of vessels inspected, the number of British and foreign vessels, respectively, and the number of defects of original construction, structural defects through wear and tear, and cases of dirt, vermin and other conditions prejudicial to health —Mr ELLIOT replied According to the information contained in the annual reports so far received of the medical officers of health of the port health and riparian districts of England and Wales for 1937, and otherwise supplied to me, the following are the particulars desired by the hon. member —

	British vessels	Foreign vessels
Number of vessels inspected during the year	66,087	29,865
Defects of original construction	2,148	1,845
Structural defects through wear and tear	5,630	2,020
Dirt, vermin, and other conditions prejudicial to health	10,578	2,747

Where a vessel was inspected on more than one occasion during the year it is included a corresponding number of times in the above figures

Unfit Houses in Rural Districts

Mr DAY asked the Minister of Health whether he could give particulars, according to the latest estimates, of the number of houses required for rural districts to replace houses at present unfit for human habitation, and what steps were being taken at present to provide more houses for rural workers —Mr ELLIOT replied. I estimate that in addition to some 33,000 houses built, building or about to be put in hand by the rural district councils they will need to provide a further 23,000 houses for the replacement of those which are unfit

Replying to a further question by Mrs TATE, Mr. ELLIOT said that he had had a series of conferences with local authorities for the purpose of urging them to take full advantage of the subsidies available for houses in rural areas

Workers' Wages During Sickness

Mr. FLEMING asked the Minister of Health whether he was aware of the ruling of the Court of Appeal that a workman, incapacitated through sickness, was entitled to wages and National Health Insurance benefits for the period of incapacity, unless the workman's employer had properly terminated the contract of service, and whether he intended to take any steps in the matter —Mr ELLIOT replied I am aware of the ruling of the Court of Appeal to which my hon friend refers The advice given by my department in the past has been that the liability of the employer to pay wages during incapacity depends upon the contract of employment between him and the employee and that there is no provision in the National Health Insurance Act which either entitles the employer of a person who is receiving sickness benefit to make deductions on that account from wages, or which precludes him from making such deductions in accordance with the terms of the contract of employment. The recent ruling does not call for any change in this advice and I see no reason to take any steps in the matter

Mr FLEMING. In view of the widespread practice which is now growing up of employers dismissing employees as soon as they fall ill, will my right hon friend reconsider his decision and consider the advisability of bringing in an amending bill, or of consulting employers, such as local governing bodies, as to the proper contract to safeguard the interests of employees?

Mr. ELLIOT: I should like to know before I do that that it is an increasing practice. I hope it will not become the practice of the employers in this country.

MONDAY, MARCH 13

Bombing of Chinese Mission Hospital

Mr WINDSOR asked the Prime Minister if he was aware of the bombing of the Jenkin Robertson hospital of the English Baptist mission by 14 Japanese aeroplanes, when a Chinese nurse was killed and the X-ray department destroyed; whether he had any statement to make, and what action he had taken —Mr BUTLER, under-secretary for foreign affairs, replied: This hospital at Sian suffered three direct hits resulting in the total destruction of the operating-theatre, the X-ray department machine room and two private wards. In addition, much damage was caused to adjoining buildings These premises were clearly marked with two Union Jacks, one placed on the roof of one of the buildings and one spread out on the ground One Chinese nurse was killed, but the foreign members of the hospital staff are reported to have escaped unharmed A strong protest is being made to the Japanese government The Japanese government are being reminded that the location of this mission's buildings was notified to the Japanese authorities and clear marks affixed in response to their request The right to claim compensation is being reserved

Nottingham Hospital and Institution Inquiry

Mr LYONS asked the Minister of Health whether, and by whom, any investigation had now been carried out with reference to the complaints made concerning the Nottingham City isolation hospital and the Nottingham institution respectively, whether his representative had examined the allegations made in Nottingham, and whether he was now able to say what steps he proposed to take to allay public misgivings in this matter.—Mr BERNAYS, parliamentary secretary to the Ministry of Health, replied: An investigation into the conditions at the Nottingham isolation hospital and the Nottingham institution has been carried out by a general inspector of my department with the assistance of a nurse inspector My right hon friend has considered the inspector's report most carefully and is writing fully to my hon friend I am glad to say that no evidence of any kind of infestation of beds, &c, was discovered though it seems accurate that cockroaches are to be found in the City institution and to a certain extent in the isolation hospital. I understand that the Nottingham corporation take steps to deal with these pests, and the officers of my department will continue to keep a watch on conditions in the institutions

Mr LYONS asked the Minister of Health what liaison existed in general between each general inspector for the region and the institutions and hospitals of local authorities situate within that region, and, in particular, what regular supervision had been exercised by the regional general inspector of his department over the Nottingham isolation hospital and the city institution, respectively, during the last six months —Mr BERNAYS replied The general inspectors of my department have power to visit and inspect any public assistance institution at any time, but this power does not extend to hospitals and other institutions provided by local authorities under the Public Health Acts It is the duty of the general inspector to keep himself acquainted with conditions in the public assistance institutions in his district, and for this purpose visits of inspection are paid from time to time I understand that the general inspector stationed at Nottingham has not visited the Nottingham institution during the last six months during which time, as my hon and learned friend is aware, there has been heavy pressure on the officers of my department in connexion with civil defence emergency schemes. Several visits have been paid during the last two or three years

Voluntary Hospitals and Civil Defence

Mr. DUNCAN asked the Minister of Health whether the senior permanent staff, such as the matron and secretary, of voluntary hospitals were to remain in their present ospitals in the case of an emergency or were to be moved o an outer district with the patients —Mr BERNAYS eplied My hon friend will see from the memorandum ecently published on the emergency hospital organisation hat in London and certain other centres the hospitals in he inner and outer areas are being grouped with the object of spreading skilled personnel to the best advantage The distribution of individual members of the staff between he different hospitals is one of the matters which are being worked out on their behalf by the distinguished nedical men acting as their group officers whose names, o far as London is concerned, my right hon friend announced in debate on March 2

Mr DUNCAN asked the Minister of Health whether he had completed his negotiations with the London voluntary hospitals regarding structural precautions in case of emergency , and, if so, what were the suggested arrangements —Mr BERNAYS replied The nature of the precautions to be taken has been described in a published memorandum, a copy of which I will send to my hon friend Under the financial arrangements which have been agreed with representatives of the voluntary hospitals the Government will pay all of the cost of approved precautions above £1 per bed and 70 per cent of the first £. Further details of the arrangements are being explained in a circular to the hospitals

Men Invalided Out of the Air Force

Mr GARRO-JONES asked the Secretary of State for Air how many men were invalided out of the Royal Air Force in 1937 and 1938 , in how many cases was the disability attributed to the service , and to what final appeal had an aggrieved man the right of recourse —Sir KINGSLEY WOOD replied 281 men were invalided during 1937 and 316 during 1938 the disability was attributed to service in 53 and 35 cases respectively An invalided airman who feels himself aggrieved either at the refusal of a pension or at its amount has a right of appeal to the Air Council, and such appeals are always sympathetically considered

TUESDAY, MARCH 14

African Parrots and Psittacosis

Colonel SANDEMAN ALLEN asked the Minister of Health whether, as psittacosis was a disease unknown among African parrots, he was prepared to take steps to raise the ban on the importation of these birds —Mr ELLIOT replied The information in my possession does not support the assumption that psittacosis is unknown among African parrots and I should not, therefore, feel justified in allowing the unrestricted importation of these birds

Certification of Blind Persons

Sir WILLIAM JENKINS asked the Minister of Health if he would consider the advisability of giving more licence to oculists in certifying partially sighted pupils at the age of 16 —Mr ELLIOT replied I have no power to modify the statutory definition of a blind person for the purposes of the Blind Persons Acts The criteria, set out in circulars issued to local authorities, for determining whether a person comes within that statutory definition are based on expert ophthalmological advice

OBITUARY

CUTHBERT HILTON GOLDING-BIRD

M B LOND , F R C S

Mr C H Golding Bird, consulting surgeon to Guy's Hospital, died on March 6 at the age of 90 For some years he had been living in retirement at Pitfield, Meopham, Kent, though not long ago he used to come occasionally to Guy's to give his opinion on a surgical case, and it is only in the last two years that increasing dyspnœa made him an invalid

Elliott and Fry

In 1848, when Golding Bird was born in London, his father, assistant physician to Guy's and a medical prodigy if ever there was one was at the height of his fame as a consultant, though when he died six years later he was only 40 Golding Bird was educated at Tonbridge School and King's College, London, taking his B A with honours in 1867 He then studied medicine at Guy's, winning gold medals for clinical medicine and surgery and the M B gold medal for forensic medicine in 1873 He took his F R C S in 1874, and after studying for a time in Paris was appointed demonstrator of physiology at Guy's and soon afterwards assistant surgeon As a teacher first of physiology and later of clinical surgery, and as an examiner at the Royal College of Surgeons, his kindly courtesy and consideration gained him the esteem and affection of students and he had a natural faculty for inspiring confidence in his patients and colleagues From 1905 to 1913 Golding Bird was a member of the council of the Royal College of Surgeons , he was also surgeon to Gravesend Hospital and to the Royal Deaf and Dumb School at Margate, and since his retirement had been chairman of the Kent County Nursing Association and a member of the Central Midwives Board

Golding Bird's connexion with Meopham began in 1870 when he married Miss Florence Baber who lived in the village , soon afterwards he bought Pitfield as a holiday home and when he retired enlarged it and lived there permanently He entered wholeheartedly into the life of the village, founding the local nursing association and becoming a churchwarden He was a keen antiquarian and published two histories of Meopham for the benefit of charities His house became something of a museum of the antiques he had collected, and he liked nothing better than to have a few friends to dinner and demonstrate his collection, more especially his clocks He was always pleased to give a second opinion on any difficult surgical case in the neighbourhood, writes S A L G , and his diagnostic acumen was sometimes uncanny , apart from surgery, too his knowledge was so extensive that it seemed impossible to introduce a subject with which he was not fully acquainted Mrs Golding Bird died in 1919, and they had no children

PHILIP DYMOCK TURNER

O B E , M D LOND , M R C P

Dr P D Turner died at the age of 77 on March 7 at Liss, Hants, where he had lived since he retired from his practice at Ryde, Isle of Wight, some seventeen years ago He was born in London in 1861 and was educated at Dulwich College and University College, London He qualified in 1884 and won a gold medal in his London M D in 1887 He held house appointments at University College Hospital, the Brompton Hospital and elsewhere, and also studied in Paris and Berlin In 1890 he was appointed physician to the Westminster General Dispensary and in 1896 he took his M R.C P. Soon afterwards he went into practice at Ryde, being medical officer to the Royal Isle of Wight County Hospital, and medical officer of health for Ryde He was an able surgeon and obstetrician, always willing to help a colleague in difficulties His interests were wide, and his kindly generosity gained him the affection of his fellow medical men and patients alike. During the war he acted as medical officer of the Castle Auxiliary Hospital at Ryde, and he was awarded the O.B E. for his services.

GEORGE BASIL PRICE

C.M G., M D LOND., F R.C.P.

THOSE who came in contact with Dr. Basil Price either at the Ministry of Pensions, at Malta during the war, or before that at Livingstone College will feel that they have lost a friend by his death on March 10 at the age of 67.

[Elliott and Fry

George Basil Price was the son of Samuel Newell Price and was born at Bristol in 1871. He was educated at Bristol University and St Bartholomew's Hospital, gaining *scholarships* and the medical-school gold medal at Bristol and first-class honours in midwifery in the London M.B. in 1896 He took his D.P.H. in 1901 and soon afterwards joined the staff of Livingstone College at Leyton, where for thirteen years he taught the elements of medicine and hygiene to lay missionaries going abroad Early in the war he joined the R A M C., and in 1915 was sent to Malta and attached to the staff of Imtarfa Military Hospital Although the administration of an army hospital was new to him he mastered its intricacies with such effect that by 1918 he had been promoted to the rank of lieutenant-colonel and was in command of what had become the most important fever hospital in the island with accommodation for 1700 patients His duties in Malta were mostly administrative, but he was always ready to make a midnight round with the medical officer and give his opinion on a serious case. For six months he acted as medical consultant to the forces in Malta, and at the end of the war he received the C M G. for his services

After the war Basil Price went to the Ministry of Pensions, where he at first dealt with cases of malaria and dysentery Later, as consulting medical adviser, his task was to decide the connexion or otherwise of disabilities with war service and assess their degree. In this difficult and sometimes invidious position he earned the respect and affection of all who worked with him or came before him for assessment, and it is safe to say that he had no enemies. He could, however, be wrathful in support of the dignity of the profession or in condemnation of preposterous claims for some nostrum, and this was the more effective as coming from one who was by nature gentle.

Two years ago Basil Price's services with th Ministry of Pensions ended, and since then he ha lived in *retirement* at Parkstone in Dorset. H wife, who survives him, was the daughter of Jame Garaway and their home was always an attractiv social centre.

ARTHUR JOHN COLLIS

M D. CAMB., D P H

Colonel Collis, who died on March 8 at Clent nea Stourbridge at the age of 70, was the son of Willia Blow Collis of Old Swinford, Worcestershire, an was born there in 1868 He was educated at Stou bridge Grammar School, Leamington College an Selwyn College, Cambridge He took honours in th natural sciences tripos in 1890 and then went t Guy's, qualifying in 1894 After holding hous appointments in London and Newcastle he took hi D.P.H. in 1900 and his M.D. in the following yea He then went into practice at Newcastle; there hi specialty was children's diseases, and he was an activ member and at one time president of the Newcastl Clinical Society. He was a territorial for many yea and commanded a combatant battalion, the Norther Cyclists Battalion, during the war and when it wa disbanded served as lieut -colonel in the R.A.M.C (T F) In 1919 he was appointed medical superintendent of the Ministry of Pensions Hospital at Leiceste and in 1925 he retired and went to live at Clent

Colonel Collis married Dorothy, daughter of th Rev H. P. Gurney, late principal of Armstrong (now King's) College, Newcastle, and he leaves a widow and two sons.

"There are two special differences which English experience does not quite decide for us in Australia (i) *the cost of long-distance travelling*, necessary in a large country with a sparse population . . (ii) the difficulties of the outlying and very poor districts, where no contribution would support a medical man. Mr Ogilvie, in Tasmania, has attempted to solve this difficulty by appointing government medical officers, who are paid a salary of £600, rising to £850 a year, *plus* a house allowance *of £50* and a *gratuity of £50* a year, paid at the end of three years' service, if their work is satisfactory to the Director of Public Health By this scheme the doctor is allowed a month's holiday each year, in order to "apply his mind anew to the study of the most modern methods of treatment given under the best conditions" I presume this month's respite would be given even if the medical men were inclined to apply their mind to golf and fishing. Medical attention is free to everyone, at either the practitioner's residence or the patient's home, between 9 A.M and 7 P M on week-days, between 9 A.M. and 12 noon *on Saturdays, and not at all on Sundays.* The free service extends to maternity cases, but only at approved hospitals Outside these hours the medical men may charge £1 1s. for each visit, and 6*d* per mile travelling fees, he may charge the same amount for a confinement *if it does not* eventuate during the prescribed hours. This scheme is the only one I can imagine possible in these out-of-the-way places, which I know well, but it practically means nationalization of the profession if it is extended, and political pressure may easily force the encroachments gradually"—B KILVINGTON, *Med. J. Aust*, Dec. 17, *1938, p. 1022*

MEDICAL TOUR TO AMERICA.—In connexion with the New York exhibition the *Bruxelles-Médical* has arranged a medical tour to the United States which will leave Havre on Aug 29 and will return on Sept. 30 In all six days will be spent in New York, and visits will also be made to Philadelphia, Atlantic City, Washington, Chicago, Detroit, Toronto, the Niagara Falls, and Boston Further particulars may be had from the travel department of the *Bruxelles-Médical*, 29, Boulevard Adolphe Max, Brussels

MEDICAL NEWS

Royal College of Surgeons of England

At a meeting of the council of the college held on March 9 with Mr Hugh Lett, the president, in the chair, the Hallett prize was presented to Dr A McK Large of Toronto

Mr F N Doubleday was re-elected a member of the board of examiners in dental surgery and Mr Eardley Holland representative of the college on the Central Midwives Board Sir James Walton was appointed Bradshaw lecturer and Sir Walter Langdon Brown Thomas Vicary lecturer for the ensuing year It was reported that Mr A S Kerr had been appointed to a Streatfeild research scholarship

A diploma of membership was granted to Dwarkanath Bhargav Kulkarni of Bombay and the London Hospital, and diplomas of fellowship to the following candidates —

K D Fraser, M B Lond, Mark Tree, M B Lond, R A V Lewys Lloyd, M B Lond D W C Gawne M B Camb R W Smith, M B Lond D A Andersen, M B Lond, E C Herten Greaven, M B Camb Winifred J Wadge, M.B Lond A M Desmond, M B Lond G O Jelly, B.M. Oxfd, H S Sharp M B Camb, Fenton Braithwaite, M B Camb, O M Galal M B Birm, B J Bickford, M.B Lond, D B Fraser, B.M Oxfd, D A Sanford M B Lond E B C Hughes, M B Lond, M K Parikh M.B Bombay U C Chakraborty, M.B Calcutta F C Dwyer, M B Cape Town M K El Sherbini, M.B Cairo, D W Guthrie, M B N Z, E F Langley, M B Melb, James Patrick M B Edin, A A Shorter, M.B Sydney, and R R Talbot, M B N Z

Licences in dental surgery were granted to the following candidates —

B D Bantin W K Batten M S Berman T H Blennerhassett, C H Blockley T B Bridges G E Clarke, N F Clarke G W Dorr D J Fairweather Lionel Falconer, E M Field, B E Greenfield, H G Griffith, N S Harris, J L Hitchman, J F Hodgson, W E H Howsam, G M Kaye, R A E Keeler, R W Kochanek Eileen M McRaith, Montagu Malleson, L G Morgan D L Power, R K Roberts, R L Runeckles, E H Rushworth, D H Shepperd Albert Southwell, John Symmons, Gerald Tidswell C W Turner, L A Wakeford, H W Walker-Smith, L J Wallace, F R Walmsley, and I C S M Webb

Diplomas in ophthalmic medicine and surgery were granted, jointly with the Royal College of Physicians, to the following candidates —

Dorothy A Barton, M R Bhandari, W L B Burns Frank Clifton J K De Kock, I G de Zilva G D Harthan, R W Hazelton, B K Kapur V N Khanna, V R Koppikar J P Kuruvila, W N Murray, Krishna Narayan, G S P Noble P J O Shaughnessy, Sundram Pillai, J D Prasad Anzarul Islam Quraishi Monsurul Rahman Rajendra Rohatgi, A M Suhail Zakaria Tahir, R S Varma, W G Watson Randal Whittaker, and A L Young

Royal Faculty of Physicians and Surgeons of Glasgow

At a meeting of the faculty on March 6, with Dr John Henderson, the president, in the chair, the following were admitted to the fellowship —

Theodore Crawford (Glasgow), Tom McEwan (Glasgow) George Lightbody Montgomery (Glasgow) and Lakshman Nandkeolyar (Edinburgh)

University of Manchester

Dr L H Gillespie has been appointed assistant bacteriologist in the routine section of the department of bacteriology

A book prize has been offered by Mr Stanley S Bond, the chairman of Messrs Butterworth and Co The prize, which will be known as the Butterworth prize in medicine, will be awarded on the results of the final examination for the degrees of M B, Ch B

Oxford Ophthalmological Congress

The twenty-eighth annual meeting will be held at Keble College from July 5 to 8 Mr F A Williamson Noble will deliver the Doyne memorial lecture, and he has chosen as his subject ocular consequences of certain chiasmal lesions Mr Frank Law and Mr Keith Lyle will open a discussion on orthoptic training and Mr Harrison Butler will speak on miners nystagmus Papers will also be read by Sir Arnold Lawson, Dr Bernard Samuels (New York), Mr P J Doyne and Mr Basil Graves Further information may be had from the hon secretary, Dr F A Anderson, 12, St John's Hill Shrewsbury.

Queen's University, Belfast

Dr Gavin Boyd has been appointed tutor in obstetrics in the university

National University of Ireland

The degree of M D has been granted to Dr Florance O'Sullivan

Naval Medical Compassionate Fund

A meeting of the subscribers of this fund will be held at 3 15 P M on April 12, at the medical department of the Navy, Admiralty, S W 1, to elect six directors of the fund

Course on Disinfestation

The Royal Sanitary Institute is to hold a fortnight's course of instruction in disinfestation work which will begin on Tuesday, May 16 Full particulars can be had from the secretary of the institute, 90, Buckingham Palace Road, London, S W 1

British Postgraduate Medical School

On March 28 at 4 30 P M Dr C M Hinds Howell will give the first of six lectures on syphilis of the nervous system, and on April 14, at 2 30 P M, Mr H A T Fairbank will give the first of three lectures on generalised diseases of bone Applications for tickets for these lectures should be made to the dean of the school, Ducane Road, London, W 12

Royal College of Obstetricians and Gynæcologists

The honorary fellowship of the college is to be conferred on Prof Walter W Chipman, emeritus professor of obstetrics and gynæcology in the McGill University The following members of the college have been elected to the fellowship —

Waring Gerald Cosbie, Canada, George Stewart Davidson, Aberdeen John Emmanuel Reid Heppolette Lahore Alison Mary Hunter, Glasgow Thomas Norman Arthur Jeffcoate, Liverpool, Douglas Hamilton MacLeod, London Kenneth McMillan, Birmingham, Ellen Douglas Morton Glasgow, William Charles Wallace Nixon London, Nilkanth Anant Purandare Bombay Elaine Margaret Katharine Salmond, London William Pelton Tew, Canada Beatrice Turner, London, and Charles Henry Walsh, Liverpool

Convalescent Home at Tadworth

The country convalescent branch of the Hospital for Sick Children, Great Ormond Street, will not after all have to be closed on account of the heavy expenses involved in rebuilding the London premises The London County Council has agreed to be responsible for the maintenance of a proportion of the beds for two years The work will continue under the management of the hospital and a special Tadworth maintenance fund is to be opened to provide for the future of the home

Postgraduate Courses in Dublin

It is proposed to hold "refresher courses" in clinical surgery and medicine in Dublin from June 19 to 30 Each of the ten teaching hospitals will be at home to postgraduate visitors on one day in each week The morning sessions will probably be devoted to surgery and the afternoons to demonstrations in clinical medicine Further information may be had from Mr William Doolin, F R C S I, St Vincent's Hospital, Stephen's Green, Dublin

German Gynæcological Society

The annual meeting of this society will be held in Berlin from Oct 18 to 21 Papers will be read on medical care during pregnancy, miscarriage as a eugenic and economic problem, early diagnosis of genital carcinoma by means of propaganda and periodic examination, statistics for cæsarean section in Germany during 1938, treatment of placenta prævia with special reference to cæsarean section Subjects for discussion will include the history of woman and of gynæcology, vitamins, and endometrioma. Further information may be had from Prof H Fuchs, Staatliche Frauenklinik, Schellmühlerweg 1, Danzig-Langfuhr

International Congress of Pædiatrics

The fifth International Congress of Pædiatrics will be held in Boston, Massachusetts, on Sept. 3, 4, and 5, 1940. As the programme is soon to be drawn up, suggestions for subjects for general discussion should be submitted to the secretaries of the British national committee (Dr. A. G Maitland-Jones, 31A, Weymouth Street, London, W.1, and Dr R W B Ellis, 82, Wimpole Street, W 1) within the next ten days The programme will include sessions devoted to general discussions and others to the delivery of individual papers

Glasgow Royal Maternity and Women's Hospital

At the annual meeting of this hospital Prof. T K. Munro said that during the past year over 9000 women had been attended, fully half in the hospital itself and the remainder in the outdoor department Among the latter group of 4500 women there was only 1 death The maternal death-rate among inpatients was 1·4 per cent , but in nearly a third of the fatal cases the patient was so ill on admission that she died within twenty-four hours The combined mortality of those treated in their own homes and in hospital was less than 0·75 per cent The Lord Provost of Glasgow said that he had decided to call a conference to discuss a scheme by which contributions to voluntary hospitals would go into a common pool Instead of having competing flag-days there would be one hospital week in the city during which all could make their contributions

Medical Society of London

Mr Walter Elliot, Minister of Health, was the guest of honour at the 164th anniversary dinner of this society held on March 9 at Claridge's After Dr. C. E. Lakin, the president, had called on the company to honour the loyal toasts, Mr. Elliot proposed the health of the Society, the members of whom he welcomed as fellow-craftsmen He spoke of the satisfaction to a Scotsman of living in the capital of the Empire, and especially of being entertained by one of the greatest of its societies. Groups and societies of medical men, he said, were in some ways the very flower of the cities in which they flourished. A peculiar quality of London's societies was their urbanity and their dignity, exemplified by the ritual of the Lord Mayor's ceremonies That great Londoner, Dr. Samuel Johnson, had said, "He who is tired of London is tired of life, for everything there is in life there is in London " The Medical Society of London proved the truth of that saying. Aged, illustrious, virile, still continuing to attract the cream of medical society, and looking back to its founders who had lived before the French Revolution (when the United States were still nearly as chimerical as the League of Nations), the more it changed the more it remained the same He fancied that Dr. Lettsom, had he by some kink in the space-time continuum been able to walk into the room, would have found the members of the present day as much his brothers as those of his own time. The medical profession was so old that the religions of the world were mushrooms in comparison. The Minister of Health had never looked in vain to the medical profession, although he had asked of them service after service and was now asking doctors to make the tremendous mental adjustment required to fit them for an emergency organisation —The President replied, saying that many believed that a medical education fitted a man for any avocation in life; he gave as examples Mr. Walter Elliot and Mr Claridge, who had been a medical student at St. George's The society was, he declared, not only the oldest but the best in London; it possessed the spirit of good fellowship and of give-and-take.—Mr. Alexander Simpson-Smith proposed the Visitors, who included the presidents of many medical societies and corporations and the medical heads of the three defence services —Prof. W. Fletcher Shaw, president of the Royal College of Obstetricians and Gynæcologists, replied. The forefathers of the society were, he said, distinguished for their width of education and culture, their broad outlook on life and their interest in everything connected with medicine and in many things outside it In the case of his own corporation he recognised the valuable experience gained from initial opposition and criticism; he hoped that it might lay such foundations of tradition that the men who came after would be able to build upon them an enduring edifice.

Royal Society of Medicine

The house and library of this society will be closed for Easter from April 7 to April 10 On April 6 and 11 the library will be closed at 6 30 P.M.

Central Midwives Board

The report of this board for the year ended March 31, 1938, which has just been published, shows that at the end of the year there were 67,089 women on the Midwives Roll, an increase of 2043 on the total for the previous year. Of these, however, only 17,494 were actually practising midwifery The number of candidates for the midwifery examination was 4420—the highest number recorded—and three out of every four were successful. Reference is made in the report to the removal from the Midwives Roll of the names of 1164 midwives who surrendered their certificates to local supervising authorities under the provisions of the Midwives Act, 1936

Committee on Medical Aspects of Flying

The Secretary of State for Air, Sir Kingsley Wood, on the recommendation of the director of medical services of the Royal Air Force, has appointed a standing committee to investigate and advise him on the medical aspects of all matters concerning personnel which might affect safety and efficiency in flying. The committee will be constituted as follows: Sir Edward Mellanby, F.R.C.P., F.R.S (chairman), Prof F. C Bartlett, F.R.S , Dr E. A. Carmichael; Mr. C S. Hallpike, F.R.C.S , Mr. B. H. C. Matthews, Sc.D ; Sir John Parsons, F.R.C.S., F.R.S , Prof. L J. Witts, F.R.C.P., Air Vice Marshal A. V. J Richardson, M.B (director of medical services), and Air-Commodore H E. Whittingham, F.R.C.P.E

Westminster Hospital

King Edward's Hospital Fund has offered to make a special grant of £15,000 towards the £100,000 required to open this hospital free of debt, on condition that the balance is raised by April 20, the day when the King accompanied by the Queen, will open the new buildings About £10,000 has already been raised.

THE LANCET 100 YEARS AGO

March 16, 1839, *p* 902.

From a pamphlet entitled "A Letter to the Lord Chancellor on the present State of the Law of Lunacy" by A Barrister of the Inner Temple

. . To remedy such errors as this, the author proposes that "Instead of the power being vested, as it now is, in the hands of any two physicians, surgeons, or apothecaries, no person whomsoever should be confined in any mad-house, lunatic hospital, or licensed asylum, until an inquest of twelve men had first determined upon the fact, whether the individual was sane or not · it would then become a matter of proof to be supported as well by the evidence of medical men, as also by that of the friends of the unfortunate sufferer (the latter being frequently, from their connection, the better judges whether the subject of inquiry ought to be under any actual restraint); counsel if required, on either side, should be permitted to attend , and the supposed lunatic, if not in a dangerous state, should always appear before the inquest; if, however, it would be imprudent to produce the lunatic from any ill consequence which might attend the violence of the malady, it ought then be compulsory on two medical men, or one medical man and two other persons, to testify such facts upon oath

"This trial by jury might be very easily carried into effect throughout the country, by constituting as judge upon every such inquiry, the Coroner of the county, division, or jurisdiction, within which the lunatic might happen to reside, or to have been taken charge of by the parish officer.

"Independently of the protection which this trial by jury would afford to personal liberty, there is another cogent reason why it should be carried into effect It is, that too heavy a responsibility is at present thrown upon the medical profession. . . ."

Appointments

Barsby, Beryl E, M B Lond resident medical assistant and clinical pathologist at the Hospital for Sick Children, Great Ormond Street

Bremer J K M B Cape Town F R C S resident surgical officer at the Walsall General Hospital

Dickie, G G, M.B Aberd D P H assistant medical officer of health for Barrow in Furness

Flacks Benjamin, M B Manc resident medical officer at the City General Hospital, Leicester

Higginson, A B M B Lpool third assistant medical officer at Shenley Hospital Middlesex

Kinstrie W H M B Edin D P H medical assistant to the medical officer of health for Kingston upon Thames

Luxton, R W M D Manc M R C P hon physician to the Christie Hospital, Manchester

MacKechnie D M M B Glasg senior school medical officer and senior assistant medical officer of health for Stoke on Trent

McKissock Wylie, M S Lond F R C S, associate neurological surgeon to St George's Hospital London

*Mill, W A, M.S Lond, F R C S surgeon to the ear, nose, and throat department at St Thomas's Hospital London

Millar, W G, M B Edin. pathologist and director of the clinical research laboratory at the Victoria Infirmary, Glasgow

*Neilson, D F A, B.A Camb F R C S surgeon to the ear nose, and throat department at St Thomas's Hospital London

Nutt A B, M B Lond hon ophthalmic surgeon to the Children's Hospital, Sheffield

Parker G E M.B Camb F R C S hon assistant surgeon to the Woolwich and District War Memorial Hospital

Peacock Roydon B Chir Camb F R C S assistant surgeon to the ear, nose and throat department of St George's Hospital, London

Pearson, J F G B M Oxfd, M R C P hon physician to the Connaught Hospital, London

Townsend Eric, M D Edin D P H assistant medical officer of health for Bournemouth

Vartan, C K F R C S M R C O G hon assistant obstetric surgeon to the Woolwich and District War Memorial Hospital

Colonial Service—The following appointments are announced

Smith, H W, M R C S medical officer West Africa
Rigby, E P M B Lond medical officer, Kenya,
Murcott E H M B Edin, medical officer Kenya
Cooke F R N, M B Dubl medical officer Kenya
Vilain P W M B Lond, D T M & H, D P H, medical officer of health, Trinidad
Lee, H B M B Melb, D T M & H, senior specialist, medical department, Nigeria
Fitzmaurice H G, L R C P I senior medical officer Nyasaland and
Mackie, J B M B Edin D P H D T.M malariologist medical department Hong Kong

* Subject to confirmation

Medical Diary

March 20 to March 26

SOCIETIES

ROYAL SOCIETY OF MEDICINE 1, Wimpole Street W 1
Monday
United Services 4 30 p m, Dr C A Green Ætiology of Acute Rheumatism
Tuesday—5 30 p m general meeting of fellows
Pathology 8 15 p m, Dr F Duran-Jordà (head of the Spanish Republican Army Transfusion Service) The Preservation of Blood for Transfusion Dr Dorothy Russell and Mr D W C Northfield False Diverticulum of a Lateral Ventricle causing Hemiplegia in Chronic Internal Hydrocephalus Dr S D Elliott Bacteræmia following Tonsillectomy
Wednesday
Comparative Medicine 5 p m, Miss A W Greener and Prof F C Minett D Sc Anthrax in Mink. Prof J J Wright, F R C V S Nembutal Anæsthesia in the Pig Mr R Lovell, Ph D Isolation of a Pasteurella from a Sample of Udder Secretion
Thursday
Urology 8 30 p m Mr A Ralph Thompson Secondary Diseases of the Kidneys Dr M D Nosworthy Anæsthetic Problems in Urology
Friday
Disease in Children 5 p m (cases at 4 15 p m), Prof Robert Debré (Paris) Familial Hepatitis and Chronic Jaundice
Epidemiology and State Medicine 8 15 p m Dr F R Cullinan The Epidemiology of Jaundice

HUNTERIAN SOCIETY
Monday—6 30 p m (Simpson's Restaurant Bird in Hand Court 76 Cheapside, E C) Lord Horder and Mr W H Ogilvie Misleading Leading Symptoms

CHELSEA CLINICAL SOCIETY
Tuesday—8 30 p m (Rembrandt Hotel, Thurloe Place S W 7) Mr F Carew Shaw and Mr C Hamblen Thomas The Medical Treatment of Sinusitis

ASSOCIATION OF INDUSTRIAL MEDICAL OFFICERS
Friday—5 30 p m (London School of Hygiene Keppel Street W C 1) business meeting 6 p m, Sir Owen Williams and Colonel A W Garrett Factory Construction and Health

MEDICO LEGAL SOCIETY
Thursday—8 30 p m (26 Portland Place W 1) Dr Gerald Slot Colonel Walter Parkes and Captain G M Eden The Street Accident

EUGENICS SOCIETY
Tuesday—5 15 p m. (rooms of the Royal Society Burlington House Piccadilly W 1) Mr F Lafitte The Work of the Population Policies Committee

LECTURES, ADDRESSES DEMONSTRATIONS &c

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East S W 1
Tuesday and Thursday—5 p m Prof J A Gunn The Pharmacological Actions and Therapeutic Uses of Some Compounds Related to Adrenaline (Oliver-Sharpey lectures)

UNIVERSITY OF LONDON
Monday—5 p m (St Thomas's Hospital, S E 1), Dr W E Gye, F R S The Present Position of the Cancer Problem

UNIVERSITY OF BIRMINGHAM
Tuesday and Thursday—4 p m Dr Peyton Rous (New York) Present Aspects of the Cancer Problem (William Withering lectures)

UNIVERSITY OF GLASGOW
Tuesday—4 30 p m (Tennent Memorial Building Church Street) Dr John Marshall The Eye in the Specific Infectious Diseases

TAVISTOCK CLINIC Malet Place W C 1
Monday—4 30 p m., Dr H Crichton Miller Self and Racial Evolution

BRITISH POSTGRADUATE MEDICAL SCHOOL Ducane Road, W 12
Monday—5 30 p m Mr C H Frankau Injuries of the Upper Limb and General Principles in the Treatment of Joint Injuries
Tuesday—4 30 p m, Dr S Levy Simpson Diseases of Endocrine Glands 5 30 p m Mr P H Mitchiner Injuries to Nerves and Vessels
Wednesday—Noon clinical and pathological conference (medical) 2 p m, Dr J D MacLennan The Bacteriological Diagnosis of Diphtheria 3 p m clinical and pathological conference (surgical) 4 30 p m Prof F C. Dodds Hormones in Relation to Medicine and Pathology 5 30 p m, Mr C Max Page Amputations
Thursday—2 15 p m, Dr Duncan White radiological conference 3 30 p m Dr P M F Bishop Amenorrhœa 5 30 p m, Mr G Jefferson Head Injuries
Friday—2 p m, clinical and pathological conference (obstetrics and gynæcology) 2 30 p m, Mr Stanford Cade Radium 5 30 p m, Dr A F Tudor Hart Recent Experience in the War in Spain.
Daily, 10 a.m to 4 p m medical clinics surgical clinics and operations obstetrical and gynæcological clinics and operations

MAIDA VALE HOSPITAL FOR NERVOUS DISEASES, W 9
Thursday—3 p m, Dr Redvers Ironside clinical demonstration

ST GEORGE'S HOSPITAL S W 1
Thursday—5 p m psychiatric demonstration

NATIONAL HOSPITAL Queen Square W C 1
Monday—3 30 p m, Dr C P Symonds Cerebral Tumours (2)
Tuesday—3 30 p m Dr Purdon Martin Acute Infective Diseases of the Brain
Wednesday—3 30 p m Dr F M R. Walshe clinical demonstration
Thursday—3 30 p m Dr Denis Brinton Vascular Disease of Central Nervous System (2)
Friday—3 30 p m, Mr I A Williamson Noble Papillœdema
Outpatient clinic daily at 2 p.m

HOSPITAL FOR SICK CHILDREN Great Ormond Street W C 1
Thursday—2 p m Dr Ruby Stern Forms of Meningitis and Their Treatment 3 p m Dr R Bonham-Carter Gastro-enteritis in Infants.
Outpatient clinics daily at 10 a m and ward visits at 2 p m

HAMPSTEAD GENERAL AND NORTH WEST LONDON HOSPITAL, N W 3
Wednesday—4 p m Mr O V Lloyd Davies Common Rectal Symptoms and Diagnosis

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn Road, W C 1
Friday—4 p m Mr W A Mill Earache in the Normal Ear

ST JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE Ranelagh Road S W 1
Friday—3 30 p m Drs A T M Wilson E Wittkower and S D Mitchell The Psychological Aspects of the Rheumatic Diseases

FELLOWSHIP OF MEDICINE AND POST GRADUATE MEDICAL ASSOCIATION 1 Wimpole Street W 1
Monday to Sunday—West End Hospital for Nervous Diseases Welbeck Street W 1 afternoon course in neurology—Chelsea Hospital for Women Arthur Street,

S W 3, all-day course in gynæcology—ROYAL EYE HOSPITAL, St George's Circus, S E 1, afternoon course in ophthalmology—BROMPTON HOSPITAL, S W 3, 5 15 P.M, twice weekly, M R C P course in chest diseases—MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W 1, Mon, Wed, and Fri, 5 15 P M, Primary F R C S physiology course—ROYAL CHEST HOSPITAL, City Road, E C 1, Mon, Wed, and Fri, 8 P M, M R C P course in chest and heart diseases (Open to non-members)—BRITISH LEGION HEADQUARTERS, 25, Eccleston Square, S W 1, Thurs, 8 30 P M, lecture on bronchiectasis—PARK HOSPITAL, Hither Green, S E 13, Sat and Sun course in fevers—UNIVERSITY COLLEGE, Gower Street, W C 1, Fri, 8 30 P M, Mr Somerville Hastings and Dr D Stark Murray, Sir Henry Brackenbury and Dr Frank Gray That the Institution of a Whole-time State Medical Service would be in the Interests of the Nations' Health

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St James' Hospital, Ouseley Road, S W 12

WEDNESDAY—4 P M, Dr L Colebrook The Chemotherapeutic Treatment of Streptococcal Infections

MANCHESTER ROYAL INFIRMARY

FRIDAY—4 15 P M, Dr Norman Kletz medical cases

LEEDS GENERAL INFIRMARY

TUESDAY—3 30 P M, Dr H H Moll Hay-fever and Other Minor Allergic Diseases

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION

WEDNESDAY—4 15 P M (Lock Hospital, 41, Rottenrow), Dr David Watson · Venereal Disease in Women

Vacancies

For further information refer to the advertisement columns

Argyll and Bute District Mental Hosp—Asst. M O, £400

Barley Mow Welfare Centre, Frazier Street, S E 1—M O, 1½ guineas per session

Bath, Royal United Hosp—H S, at rate of £150

Bedford County Hosp—Sen H S, and Cas O, each at rate of £150

Belgrave Hosp for Women, Clapham Road, S W 9—Two H P's, and H S, each at rate of £100

Birmingham, Monyhull Colony—Res A M O, £350

Blackburn Royal Infirmary—Res surg O, £250

Bradford, Municipal General Hosp, St Luke's—Med supt, £1100

Bradford City—Asst school M O, £500

Bradford Royal Infirmary—Two H P's and five H S's, each at rate of £150

Brighton, Borough Infectious Disease Hosp, &c—Sen res M O, £450

Cambridge, Addenbrooke's Hosp—H P, at rate of £130 Also hon surgeon

Coventry and Warwickshire Hosp—Radiographer, £300 Also H S, at rate of £150

Devon Mental Hosp—Jun asst M O, £350

Doncaster County Borough Council—Consultant obstetrician and gynæcologist, £775

Doncaster Royal Infirmary—Res surg O, and orthopædic H S, at rate of £250 and £150 respectively

Durham County Council—Temp asst M O H, £600

East End Maternity Hosp, 396, *Commercial Road, E* 1—Res M O, at rate of £150

Edgware, Middlesex, Redhill County Hosp—Cas M O, £350 Also two jun asst M O's, each at rate of £250

Epsom County Hosp—Res asst M O, at rate of £250

Evelina Hosp for Sick Children, Southwark, S E 1—H S, at rate of £120

Exeter, Princess Elizabeth Orthopædic Hosp—Res H S, at rate of £150

Exeter City Mental Hosp—Med supt, £750 Also asst M O, £400

General Post Office, E C 1—M O's for Cable Ships, 1 guinea per day

Hong Kong University—Chair of Pathology, £1000–£25–£1250

Hosp for Sick Children, Great Ormond Street, W C 1—Two H P's and two H S's each at rate of £50

Hosp of St John and St Elizabeth, 60, *Grove End Road, N W* 8. Res H S, at rate of £75

Hostel of St Luke, 14, *Fitzroy Square, W* 1—Res M O, at rate of £200

Hull Royal Infirmary—Second H S, at rate of £150

Indian Medical Service—European officers

Isleworth, South Middlesex Fever Hosp—Asst. res M O, £250

Kensington Royal Borough—Temp asst M O for air-raid work, £500

Leicester Royal Infirmary—Radiotherapeutist, £500 Also hon asst surgeon, 100 guineas

Liverpool, Broadgreen Sanatorium—Res asst M O, £250

Liverpool, Fazakerley Isolation Hosp—Res asst M O, £250

Liverpool Heart Hosp 34, *Oxford Street*—H P, at rate of £100

London Chest Hosp, Victoria Park, E 2—H.P, at rate of £100 Also physician to inpatients

London County Council—Part-time radiologist, £350, &c Part-time M O, £300 Also temp asst aurist, 34*s* 6*d* a session

Maidstone, Kent County Mental Hosp—Second asst M O, £350

Manchester Ear Hosp, Grosvenor Square—H S, at rate of £150

Manchester Northern Hosp, Cheetham Hill Road—Res surg O, at rate of £200

Manchester Royal Children's Hosp, Pendlebury—Asst M O to outpatients' dept, at rate of £150

Metropolitan Hosp, Kingsland Road, E 8—Sen and jun H P's and H S's, each at rate of £100

National Hosp for Diseases of the Heart, Westmorland Stre *W* 1—Res M O, and outpatient M O, at rate of £1 and £125 respectively

Newport, Mon, Royal Gwent, Hosp—Appointments, at rate o £200–£150

North Riding of Yorkshire County Council, &c.—M O H and asst to county M O H, £800

Norwich City—Asst M O H and asst school M O, &c,

Oldbury Borough—Asst M O H, £600

Paddington Green Children's Hosp, W 2—H P, and H S, each at rate of £150

Poplar Hosp, East India Dock Road, E 14—Second res officer, at rate of £175

Preston, Sharoe Green Hosp—Jun asst res M O, at rate of £100

Rochdale Infirmary and Dispensary—Cas H S, £150

Rotherham County Borough—Temporary asst M O, £600

Royal Air Force.—Commissions

Royal Cancer Hosp, Fulham Road, S W 3—Res H S to radio dept, at rate of £100

Royal Eye Hosp, St George's Circus, S E 1—Refractionist to L C C children's dept, and clin asst, £80 and £ respectively

Royal Naval Medical Service—M O's

Royal Waterloo Hosp for Children and Women, Waterloo Road *S E* 1—Hon surg reg, hon med reg, and hon gynæcological reg

St Albans and Mid Herts Hosp—Res M O, £150

St Bartholomew's Hosp, E C 1—Hon instructor for speech defects, &c

St John's Hosp, Lewisham, S E 13—Res surg O, £200

St John's Hosp for Diseases of the Skin, 5, *Lisle Street, W C* Hon physician

Salford Royal Hosp—Hon asst neurological surgeon

Smethwick, St Chad's Hosp—H P and anæsthetist, at rate of £150

South London Hosp for Women, Clapham Common, S W 4—Clin asst to gynæcological outpatients

Southend Municipal Hosp—Asst M O, £325

Southend-on-Sea General Hosp—Res obstet. officer, at rate of £100

Stoke-on-Trent, North Staffordshire Royal Infirmary—H S to orthopædic dept, at rate of £150

Swanley, Kent, Hosp Convalescent Home, Parkwood—Res M O, at rate of £200

Swansea General and Eye Hosp.—Cas O, at rate of £150 to £175

Victoria Hosp for Children, Tite Street, Chelsea, S W 3—Ophth surgeon and second orthopædic surgeon Also cas O, at rate of £200

Wakefield, Clayton Hosp—H S, at rate of £175

Wakefield Mental Hosp—Asst M O, £350

West Bromwich, Hallam Hosp—Two asst M O's, each at rate of £200

West London Hosp, Hammersmith, W 6—Res cas O, at rate of £100 Also asst physician

Willesden General Hosp., Harlesden Road, N W 10—Res officer, at rate of £100

Woolwich and District War Memorial Hosp, Shooters Hill, S E 1 Res med reg and res pathologist, at rate of £150

Births, Marriages and Deaths

BIRTHS

HILL—On March 8, at Bath, the wife of Dr Leslie Charl Hill—a daughter

LORD—On March 8, at Bournemouth, the wife of Dr S L Lord, of Hamworthy, Dorset—a son

ROUTH—On March 11, at Exeter, the wife of Dr Douglas J Routh, of Okehampton—a daughter (prematurely)

SODDY—On March 9, at Devonshire Place, W 1, the wife of Dr Kenneth Soddy—a son

VINCENZI—On March 9, at Ipswich, the wife of Dr Vincenzi, of Earl Soham—a son

MARRIAGES

CADAS—LITTLEWOOD—On March 9, at St Peter's Church, Croft-on-Tees, John Borland Cadas, M B Glasg, to Mary Littlewood

DEATHS

CLARK—On March 11, at Northwood, Middlesex, Alexander Clark, L D S, late of Weymouth Street, W 1, aged 78

COLLIS—On March 8, at Stourbridge, Worcs, Arthur J Collis, M D Camb, T D, aged 70

CULLINANE—On Feb 14, at sea, Major A J Cullinane, M B N U I, I M S

PRICE—On March 10, George Basil Price, lieut-col, C M G, M D Lond, F R C P, of Parkstone, Dorset, aged 6

SHAW—On March 9, at Clifton, John Edward Shaw, M B Edin, aged 90

TURNER—On March 7, at Liss, Hants, Philip Dymock Turner, O B E, M D Lond, aged 77

WHELAN—On March 5, at Shrewsbury, Lawder Thomas Whelan, F R C S I, major, R A M C (retd)

N B—A fee of 7s 6d is charged for the insertion of Notices of Births, Marriages and Deaths

NOTES, COMMENTS, AND ABSTRACTS

PROTECTION OF INFANTS AGAINST GAS

A PROTECTIVE helmet for babies was demonstrated by officials from the Home Office on Monday last in London It is designed to protect infants from birth up to the time when the child can wear a respirator —which is normally about two years of age—but it can be used for children up to four or five It consists of a hood of impervious fabric with a large window of non-inflammable cellulose acetate The hood encloses the head, shoulders and arms and is closed round the waist with a draw tape The hood is fastened inside a light metal frame which is lengthened on the underside with an adjustable tail-piece so as to form a support and protection for the child's back. The tail-piece is turned up at the end to form a seat The infant is secured in the helmet by means of a T-shaped supporting strap connected to the end of the tail piece The frame and strap are adjustable to fit different sizes of children The hood is padded on the underside Air is supplied to the inside of the hood by means of a rubber bellows of a concertina type The air passes through a filter and enters the hood through an orifice which deflects the air upwards away from the baby's head

It is stated that a steady rate of pumping of about 40 strokes per minute is adequate to keep out gas and to supply sufficient air The space in the hood is large enough to allow pumping to be stopped for some minutes There is said to be no limit to the time during which a child may remain in the helmet if the steady pumping is carried out At the demonstration two infants, aged three weeks and eight weeks, were placed in helmets with no difficulty and appeared to be unaffected by the experience They were not taken into a concentration of gas, but it was stated that this had many times been done

From the physiological standpoint the helmet seems to be practical and well thought out It weighs about 6 lb and is fairly easily carried by the mother The children shown in the helmet were certainly quite comfortable Older children are often not so placid but it was claimed that even the most excitable and fractious child could come to no harm in the device, and that temperature and humidity inside had been carefully checked and found to be satisfactory It seems likely that this is so at least from the purely physical point of view What the psychological results of enclosing a violently protesting child in such a helmet might be is another and different matter The psychological objection to the hood would, however, probably be shared by any device capable of protecting a child against gas

It was stated that 1¼ million of these helmets have been ordered and that distribution will begin fairly shortly Distribution is to be done principally by the use of the facilities available in maternity and child welfare work.

THE STORAGE OF EGGS

THE habits of the hen are such that the supply of eggs is at a maximum in April and a minimum in November, and the prices vary in inverse ratio to the supply If cheap eggs are to be available when they are most needed they must therefore be stored for over six months The cold storage of eggs has not been much practised in this country of recent years, though a large trade in stored eggs is done in the United States, but there are now indications of a renewed interest in egg storage over here The advantages and disadvantages of cold storage and gas storage are set out by Mr T Moran, D.Sc , in a free pamphlet issued by the Department of Scientific and Industrial Research He does not deal with the "pickling" processes, either with water glass or the more modern organic sealing solutions presumably because these are unsuitable for large scale use From the time of laying the egg begins to change, more especially if it has been fertilised Hence unfertilised eggs are preferred for storage Even so, and assuming that bacteria and moulds do not pierce the shell and its membranes, eggs stored in a dry atmosphere will dry and contain a larger air-space, whilst the white may shrink and liquefy, the yolk membrane and the yolk itself weaken, and a slight but unpleasant metallic taste develop Eggs, like milk, also tend to take up tastes and odours from their surroundings These defects, apart from rendering eggs unpalatable, may affect their physical behaviour when boiled or poached Cold storage at 29°–32° F with control of humidity only, allows increase of the air-cell and yellowing of the white, the yolk becomes flabby, and a storage taste develops which shows up particularly in boiled eggs It is, nevertheless, satisfactory for storage not exceeding five months—not long enough for a satisfactory carry-over from April to November Partial gas storage, in an atmosphere containing 2–2½ per cent of carbon dioxide, with control of humidity, is more satisfactory After nine months the yolk is firm and there is no storage taste, but the white still becomes rather yellow and the air-cell is large Full gas storage with 60–100 per cent of carbon dioxide and no control of humidity prevents enlargement of the air-cell, since the atmosphere is saturated with moisture and the egg cannot dry up, but the thin part of the white is watery and the thick part considerably shrunken Both gas storage methods, presumably because of condensation on the shell of water containing a relatively high concentration of carbon dioxide and because of solution and re-deposition of calcium carbonate, cause some roughening of the shell Ozone, up to one part in a million, slightly delays the appearance of storage taste in the yolk but higher amounts tend to produce a metallic or cucumber taste For most purposes eggs stored by these methods for nine months or even longer should be above reproach, but the person of critical taste will probably still prefer his boiled or poached egg to be new laid

THE MEDICAL CURRICULUM IN GERMANY

LAST week the president of the Royal College of Physicians, speaking unofficially, quoted the old saying "you can't get the terriers too soon to the rats" The new scheme for medical education in Germany announced in our issue of Jan 14 (p 103) seems to be giving it practical application From further particulars now available (*Med Klinik*, Jan 27, 1939, p 132) it seems that the course of the German student is really to be shortened by some two years, for not only is the time of study reduced from 11 to 10 half-years but the year's practical work, formerly done at the end of the course, is now to be included in this period The time occupied by the final examination is also to be reduced But if the student has less time he has more to do , for subjects which were formerly optional have now been made compulsory—notably eugenics, radiology, nature-cure methods, and occupational diseases The student must also spend six weeks in agricultural or factory service "so that he may gain practical experience of living with people in other occupations and under other social and working conditions which will be of great value to him later as doctor" It is stated that these changes aim at giving the young doctor an earlier financial independence According to the *Manchester Guardian's* Berlin correspondent (March 11) compulsory military and labour service occupy over 2½ years and the medical graduate has often been nearly 30 before he could earn his living Figures quoted in the *Munchener Medizinische Wochenschrift* (March 10, 1939, p 301) suggest that there may be other considerations which are at least as pressing as the wish to give the doctor an earlier professional start In Prussia for the year 1931–32 there were 2010 candidates for the premedical examination, but in 1936–37 the number had fallen to 1500

GRANCHER OR B.C.G.?

In *Nordisk Medicin* for Jan. 7 (p. 59) Dr. Teofilip Nyrén compares the results obtained in Sweden by the Grancher system of transferring children from tuberculous homes to healthy foster homes with those of B.C.G. vaccination. Between 1915 and 1937, the Swedish National Association against Tuberculosis was helped to board out 3297 tuberculosis-threatened children under the age of two years in healthy foster homes, and Nyrén has now obtained information as to the fate of 3013 of them. He found that the earlier in life the children were removed from tuberculous homes the better was the prognosis. Of the 290 children known to have died, 120 had died of tuberculosis. Of 272 infants who had been removed from infection directly after birth and who had not been exposed to contact with tuberculous cases during the first two years of life, 21 had died, including 3 from tuberculosis, and 11 others showed signs of tuberculosis. Turning to the rival system of B.C.G. vaccination practised in the north of Sweden under the auspices of the Swedish National Association since 1927, and in Gothenburg under the direction of Prof. Wallgren, also since 1927, Nyrén finds that the results of B C.G. vaccination are on the whole better. He thinks, however, that when a child is found to be already tuberculin-positive, the Grancher system is to be preferred. But new-born infants and children from tuberculous homes and with a negative tuberculin reaction several weeks after birth should, in his opinion, be given the benefits of B.C.G. vaccination by the intracutaneous route, followed by isolation from any infectious case of tuberculosis till they have become tuberculin-positive. For not only is the B C G. system the more humane of the two, but it also is a guarantee, to a certain extent, against infection from unknown cases of tuberculosis—a guarantee which the Grancher system cannot always give.

SEX IN ADOLESCENCE

Small books on sex for the young are now so numerous that there can be little reason why anyone should grow up either ignorant or misinformed about this subject. Prof. Corner's[1] is as good as most, being quite free from sentimentality if perhaps a trifle earnest in its manner of presentation. According to Dr. Corner sex has presumably arisen in order that all living creatures (except the lowest forms of life) should have more than one line of ancestry. He supplies short chapters on the human reproductive system, sex attraction, attainment of maturity, sex in girls, sex conduct and sex disorders. Thus the subject is approached both from the biological and the ethical standpoint, but the author, although he is a recognised authority on parts of his subject, does not probe too deeply into any one section of it, being content with a short and simple pronouncement on each point that arises. Sublimation of the sex impulse during adolescence is, he thinks, to be achieved by hard work and exercise, but it is open to doubt whether the traditional advice to "put on a couple of sweaters and take the dog for a run" is always a complete answer to the individual problem. A list of books and materials for further study of the subject is appended.

STANDARDISATION OF HÆMOGLOBINOMETERS

The committee of the British Standards Institution which prepared the British standard specification for hæmacytometer counting chambers and hæmacytometer dilution pipettes has now prepared a draft British standard specification for hæmoglobinometers The draft specification has two notable features: firstly it provides a definite colorimetric basis for the standard colour tubes, and secondly it ensures that any graduated hæmoglobinometer tube complying with the specification may be used with any colour tube complying with the specification.

The institution is now circulating copies of this draft specification for comment, and hopes that the draft will receive the widest possible consideration so that the specification when finally published may command the maximum measure of agreement A copy of the draft specification may be had, post free, from the director, British Standards Institution, 28, Victoria Street, London, S.W.1. to whom also suggestions for amendments should be sent All comments submitted will receive careful consideration when the draft is being revised for publication

A VARIETY OF EXPERIENCE

It must be given to few doctors to have enjoyed the variety of experience, professional and otherwise which has fallen to Dr. Dickie's lot. Born in Aberdeen, the son of a distinguished man of science, he began early to feel the itch to write and if his style is epistolary rather than literary there is no lack of interesting material in his latest book.[1] Country readers will envy him the opportunities of first-class fishing and shooting which have come his way, and will be anxious to try his tip for starting a jibbing horse. Others, perhaps, will be more absorbed in his experiences as general practitioner. Indian railway doctor, commandant of the Star and Garter Hospital or as film-actor. Less enviable must have been his sensations during the great Indian earthquake of 1897; when called upon to deal with an elephant with a carbuncle; or when being chased in a buggy at night by three angry wild elephants, one of which was wounded The comment on modern methods of warfare made by one of his Gurkha patients is timely: "The Gurkha yields to no man in a hand-to-hand fight, but when a great devil bomb . . . comes out of the sky and kills hundreds of men at once, it is not war!" The book is freely illustrated with good photographs.

NEW PREPARATIONS

"Desibyl" Capsules are described as hermetically sealed capsules containing desiccated whole bile in a readily soluble form. They are intended for use when a natural bile preparation is required either to replace bile lost through fistulæ, as a cholagogue, as a choleretic, or for its bacteriostatic and digestive actions. Each capsule is said to be approximately equivalent to 5 c cm. of fresh natural bile, and the suggested dose is two or three daily after meals The makers are Parke, Davis and Co, Beak Street, Regent Street, London, W.1.

Stilbœstrol and Stilbœstrol Dipropionate B.W and Co—Burroughs, Wellcome and Co. (Snow Hill Buildings, E C 1) now prepare a "Tabloid" stilbœstrol to be taken by mouth and a "Hypoloid" stilbœstrol for intramuscular injection To medical practitioners wishing to make clinical trials they also issue stilbœstrol dipropionate for oral and intramuscular administration This compound is still in the experimental stage, but laboratory evidence suggests that it may have a more sustained œstrogenic action than stilbœstrol.

"O DEATH, WHERE IS THY STING?"

C. W. C. writes: An elderly charwoman, in reply to the usual query as to the whereabouts of her trouble, explained that she was really too embarrassed to answer precisely "but if you understand my meaning, doctor, I have something the matter with the termination of Nature."—a terminological inexactitude which, however, sufficiently indicated the seat of the mischief.

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[1] Attaining Manhood A Doctor Talks to Boys about Sex. By George W Corner, M D, professor of anatomy University of Rochester London: William Heinemann (Medical Books) 1938. Pp 67. 5s

[1] Comedy and Drama of a Doctor's Life By J L Dickie. London: Heath Cranton. 1939. Pp. 192 7s. 6d.

ADDRESSES AND ORIGINAL ARTICLES

THE CLASSIFICATION OF BUCCAL NEOPLASMS

IN RELATION TO TREATMENT AND PROGNOSIS *

BY A J GARDHAM, M S Lond , F R C S

ASSISTANT SURGEON, UNIVERSITY COLLEGE HOSPITAL, LONDON ,
SURGEON TO OUTPATIENTS, HAMPSTEAD GENERAL HOSPITAL

THIS lecture is founded on experience gained in the care of 84 personal cases of carcinoma of the mouth and on observations made on a large number of others by the courtesy of my friends and colleagues at University College Hospital Since the number of cases dealt with is comparatively small and their classification divides them into a large number of groups, I have avoided any attempt at a complete statistical review and have used individual cases or groups of cases purely for purposes of illustration

The wide variations which these growths show in their reaction to treatment are very impressive Consideration of late results lends no support to the popular conception that these variations depend largely on the time at which the patient seeks advice, for many of the most relentlessly malignant growths in my series are to be found among patients who reported for treatment within a few months of their first symptom

PATHOLOGY

My object in reviewing my experience is to attempt to provide more reliable standards by correlating variations in malignancy with gross pathological characteristics I am leaving aside to a large extent questions of microscopic pathology, as this has already received a great deal of attention under eyes more practised than my own

The pathology of new growths in the mouth may be considered under five headings —

1 *Site of origin of the growth*—It is well known that growths of the lip pursue a benign course purely by virtue of their site of origin It is less generally realised that there are four other types of growth of which the course may be predicted according to the point from which they arise Growths of the cheek resemble those of the lip up to a point, but statistics regarding their curability vary very widely This is probably explained by the observation that the malignancy of these growths depends more on the stage of advancement and less on other pathological characteristics than is the case with other growths of the mouth , hence it is safe to apply the standards of carcinoma of the lip to growths of the cheek which have not extended beyond the soft tissues, whereas those which are more widespread react quite differently This has certainly been my experience, for referring to the small growths in my series I find that 4 out of 5 of them remained healed for four years or more, whereas no patient with a large growth survived longer than two years

A less common growth which runs a stereotyped course and exhibits a particular reaction to treatment by virtue of its site of origin is carcinoma of the floor of the mouth I propose to describe this growth more fully, for it forms a very well defined type which is often not recognised, although it was mentioned by Butlin many years ago The lesion starts always in the region of the orifice of the submaxillary duct and spreads widely but superficially in the floor of the mouth, finally attacking the mucous membrane covering the lower alveolus At the same time it spreads upwards on the surface of the hyoglossus towards the dorsum of the tongue, where in moderately advanced cases a dimple marks the point to which the tumour has extended The anatomical situation of these growths suggests that early invasion of the submaxillary lymph glands is a probability, but in fact glandular invasion is nearly always late, and as regards both its local reaction to treatment and its metastasising power this growth is very benign It is interesting to note that in the year in which I was born there died a man who had been operated on by Christopher Heath twenty four years earlier for this condition The specimen is in the museum of University College Hospital.

The anterior part of the tongue does not impose any particular course on the tumours which arise in it, and estimates of the malignancy of such growths must be made on other grounds Even in the posterior third both squamous cell carcinoma and lympho-epithelioma occur, and it is by the manner in which the tumour spreads rather than by its site of origin that the most reliable indications are to be obtained There is, however, a tumour of the squamous type which originates near the epiglottis and is peculiar in that it tends to remain localised in this region without metastases. The tumour is rare, and my personal cases contain no example of it , but recognition of the type is important, for a particular form of treatment is applicable to it

The only other type of growth in the mouth which runs a course which is decided purely by its site of origin is carcinoma of the lower alveolus This tumour forms an interesting contrast to carcinoma of the floor of the mouth, for the two growths originate within a centimetre of one another and are almost exactly opposite in all their characteristics The tumour of the alveolus, which is a squamous carcinoma, shows no tendency to spread superficially, and the external signs are limited for many months to a narrow fissured ulcer on the surface of the alveolus The edges of the ulcer are not everted, and on first inspection it is almost impossible to believe that it is malignant (fig 1) The spread of this tumour is entirely into the bone of the lower jaw, and radiograms taken when the ulcer is still very small may show considerable destruction of its substance At a later stage infiltration is made obvious by expansion of the jaw, but at all times it is much more widespread than the physical signs or the radiograms suggest (fig 2) This growth is probably more malignant than any other which occurs in the mouth, and among 5 personal cases the longest period of survival is two years

2 *Method of spread*—In some cases valuable information regarding malignancy may be gained by observation of the method by which a tumour spreads Thus the only common factor which I have been able to discover among growths of the anterior part of the tongue which have reacted favourably to treatment is preservation of mobility of the organ. This means nothing in early growths, but ulcerated tumours 2–3 cm in diameter which have not interfered with free protrusion account in my series for a very high proportion of the true lingual tumours which have proved to be of low malignancy, and in 4 out of 5

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* Hunterian lecture delivered to the Royal College of Surgeons on Jan. 20, 1939

patients with large growths who survived more than five years it is positively stated in the notes that protrusion was not impaired.

Mobile tumours of the tongue which are not ulcerated commonly belong to another class, which is characterised by wide submucous spread. Tumours showing this type of spread have occurred in my series not only in the posterior third of the tongue but also in the tonsil, the nasopharynx, and the upper jaw. They are not squamous epitheliomata but apart from this have shown no uniformity in microscopic structure. All of them have shown a ready response to irradiation in the primary growth and the immediate metastases, combined with a strong tendency to the formation of remote metastases within five years of their onset. All have been fully described and are generally recognised except that involving the upper jaw. This tumour is rare. My series contains only 2 cases, and study of the literature reveals only a few reports of other examples. The site of origin of the tumour is doubtful; but, since pain in the second division of the fifth nerve generally precedes any other symptom or physical sign, it is presumably in the pterygomaxillary region. In course of time it produces a symmetrical enlargement of the whole upper jaw, including as a rule the upper alveolus (fig 3). The spread is submucous until the late stages, and when ulceration finally occurs it is by the tumour bursting through the mucosa rather than involving it. By this means a mushroom-shaped protrusion is formed which is quite unlike the friable ulcer which results from a true epithelioma. In spite of its rarity this tumour should be classified alone, for its reaction to treatment is characteristic and quite unlike that of other tumours of the jaw.

3. *Time of appearance and rate of spread of glandular metastases in relation to the primary growth.*—It is well known that attempts at radical cure of carcinomatous glands in the neck, when no primary focus can be found, are seldom or never successful. In my experience the same is true if metastases appear while the primary growth is still small and early, or if they advance at a rate disproportionate to that of the extension of the primary growth. In this particular, time relations have proved to be a much more reliable indication than extent of involvement. In my series surgical treatment of glands classed as doubtfully operable on account of extent have produced immunity from recurrence for more than four years in 2 cases, whereas attempts at radical excision of easily operable glands which had appeared unduly early have proved uniformly disastrous.

4. *Reaction to treatment.*—Small early tumours have in some of my cases declared their true nature by not reacting to adequate interstitial irradiation. No tumour which involves compact bone is to be expected to react to such treatment; but, when a small early growth in soft tissue has not healed as a result of interstitial irradiation or has recurred within a few months, it has generally proved to be a lesion of high essential malignancy and equally resistant to other forms of treatment. In estimating the significance of early recurrences it is important to observe whether they are in the centre or at the periphery of the treated area. In the first case they imply that the growth is capable of surviving in the midst of fully irradiated tissues and are nearly always a sign of high essential malignancy; in the latter they may only indicate that the original irradiation was unduly circumscribed. At the other end of the scale unduly rapid regression under the influence of irradiation has also proved to be a most unfavourable sign as regards ultimate prognosis, and the conceptions of the past regarding the malignancy of rapidly growing tumours unfortunately remain true in spite of the possibility of securing disappearance of the primary lesion.

The effect of preliminary indirect treatment has sometimes proved of service in estimating malignancy. Thus a tumour which regresses after extraction of septic teeth and removal of irritation by tracheotomy or gastrostomy may usually be classified as comparatively benign. Tumours which extend rapidly in spite of such measures are very malignant.

5. *Microscopic appearances.*—The available information on this subject has been admirably laid out by Broders and Phillips and other workers. I have nothing to add to their observations except to emphasise that a high degree of differentiation is not sufficient by itself to classify a tumour as benign.

RELATION BETWEEN ESSENTIAL MALIGNANCY AND TREATMENT

The preceding classification often makes it possible to estimate fairly accurately the essential malignancy of a tumour before treatment is instituted. The importance of doing so is much greater since the advent of irradiation than it was when operation was the only available means of treatment, since, on the one hand, irradiation may be used as a means of palliation for incurable tumours which would formerly have been subjected to desperate attempts at radical treatment, and, on the other hand, its effect on normal tissue may be so powerful and so persistent that one hesitates to use it when prolonged survival is expected.

In a few cases, such as infiltrating carcinoma of the lower jaw, prompt realisation of the high malignancy of an apparently localised growth may make curative radical treatment a possibility. For the rest, the after-history of my cases suggests that evidence of very high malignancy should be regarded as an indication for restricting the scope of treatment so as to aim deliberately at palliation. The five year survivals among cases with growths which may be classified as highly malignant are negligible, however early the lesion and however extended the treatment; and my case-records show many instances in which attempts to match the malignancy of the growth by the radical nature of the treatment have ended disastrously in widespread diffuse recurrence. This has happened particularly often in attempts to treat glandular metastases by operation when their size or rate of advance was disproportionate to that of the primary growth.

A further example of the virtue of conservatism in the face of high malignancy is to be found in relation to submucous infiltrating growths of the nasopharynx, the posterior third of the tongue, and the upper jaw. Judging from my own and other collected cases, five-year survival in patients suffering from these growths is exceptional; for, if there is no local recurrence, death from distant metastases is the rule. In these cases the prospects of complete cure are too small to justify heroic attempts at complete eradication of the local lesion and long term palliation by conservative irradiation is the correct aim. Irradiation in doses which do not cause immediate damage to normal soft tissues may be freely used in the treatment of all growths of high malignancy, for late effects seldom come into the picture. In growths of low malignancy, when long life can be expected, the need for caution is greater than is commonly supposed, as I shall hope to demonstrate in a moment.

OTHER FACTORS OF IMPORTANCE IN TREATMENT

Accessibility of a growth has no essential relation to its reaction to treatment, and some inaccessible lesions, once they are approached, react quite as readily as carcinoma of the lip, whereas others which are superficial and readily accessible to any form of treatment are practically hopeless from the beginning Inaccessible growths are, however, separated from the surface by a mass of normal tissue into which the growth generally has no tendency to spread, and no form of treatment can be applied to them without damaging these normal tissues to some extent The damage caused by operation is comparatively easy to assess, for it is largely a matter of immediate mortality and subsequent deformity In this particular my experience confirms the finding that the mortality and complications associated with approach through the middle line are significantly less than those which result from lateral approach across the lymphatic fields The damage caused to normal tissue by irradiation is more difficult to assess, but evidence is rapidly accumulating that it is more serious and much more permanent than we have been accustomed to believe It is largely a question of liability to subsequent necrosis and of increased susceptibility to independent malignant growths It is most easy to demonstrate the importance of these factors by examining the late results in a growth of comparatively low malignancy, and for this purpose I wish to quote in some detail my experience with carcinoma of the floor of the mouth, which is the only common inaccessible growth in which prolonged survival is the rule

Up to three years ago I employed a routine treatment for these growths in which I used interstitial irradiation either alone or in combination with a surface application By this method I treated 9 cases, some of them apparently very advanced Of these patients 1 died three years after treatment with necrosis of the jaw, and, since no microscopical examination was made, it is possible that growth was present Of the remaining 8 not one has died of the primary lesion or of metastases from it, 2 were treated less than five years ago and are alive and well Of the 6 treated more than five years ago 1 has died of an intercurrent disease the nature of which is not known, 2 have developed necrosis of the jaw, apparently spontaneous (one six and the other seven years after treatment), neither of them having suffered any symptoms in the intervening time (fig 4) The 3 remaining patients all developed and died of independent primary growths – one in the upper jaw, one in the larynx, and one in the bronchus, hence, although the results of treatment appear at first sight to be extremely satisfactory, they are actually very bad as regards prolongation of useful life The poor results are not due to failure to cure the primary growth, and at least two of them were caused by the influence of irradiation on normal tissues and could have been avoided by using operative methods The three independent primary growths prove nothing, but similar cases have been reported with increasing frequency in the past few years, and it may at least prove to be a profitable speculation whether the increase is connected with the widespread use of irradiation in the past decade

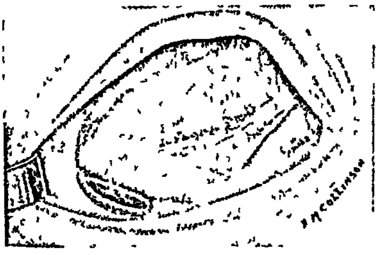

FIG 1—Squamous carcinoma of lower jaw shown superficially by a narrow fissured ulcer

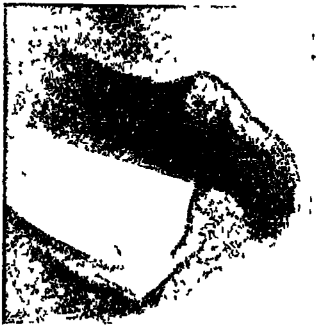

FIG 2—Radiogram of squamous carcinoma of lower jaw, showing extensive destruction of bone (Same case as fig 1)

It therefore appears that accessibility is a problem which is very intimately connected with the possibility of undue damage to normal tissues Such damage can occur also in accessible tumours treated by irradiation, but it generally does so as a result of overdosage My experience, which is confirmed by so great an authority as Berven of Radiumhemmet, is that increase of the dose of irradiation to a point at which it causes serious and immediate damage to normal soft tissue never increases the hope of eradicating a resistant growth Following the principle that normal tissue must never be over treated whatever the malignancy of the growth, I have escaped late necrosis as a complication of localised irradiation of accessible tumours, and only one of my patients so treated has died of an independent primary growth, hence, as far as it is safe to base conclusions on so limited a number of cases, it does not appear that fear of damage to normal tissue is an important factor provided that the growth is accessible and is not in close relation to bone or cartilage

Radiosensitivity—The decision between operation and irradiation must not be made purely on the grounds of radiosensitivity Neoplasms which are extremely radiosensitive are nearly always unsuitable for operation on account of their rapid growth and tendency to widespread metastasis, but it has been abundantly proved that the radiosensitivity of these lesions does not in any way affect their high essential malignancy, and long term palliation is the best that can be hoped for in most cases Growths which give the best ultimate results with irradiation are those which have a lower degree of radiosensitivity and at the same time a lower essential malignancy, hence, if irradiation is reserved for highly radiosensitive growths, those which give the best ultimate results are excluded

General condition of the patient is not a factor of importance in superficial lesions. When the choice lies between operation and irradiation for inaccessible growths, pulmonary and cardiac complications weight the balance heavily in the direction of irradiation, partly because they increase the risk of operation and partly because the late ill effects of irradiation need not be considered when expectation of life is short.

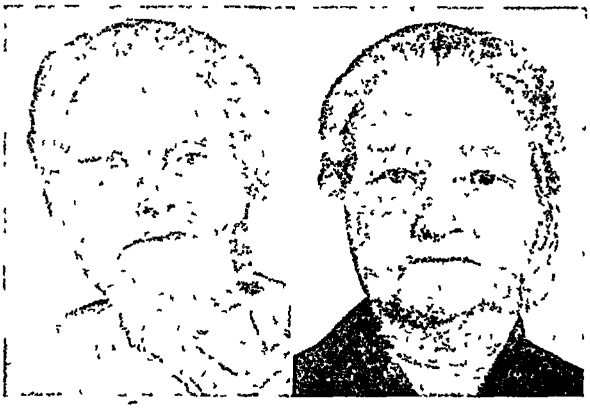

FIG. 3—Submucous infiltrating tumour of upper jaw. A, before treatment; B, six weeks later after mass irradiation.

CONCLUSIONS

Most of the growths which I have mentioned fall easily into one of three classes according to their malignancy and their accessibility, and I propose to refer to them as classes A, B, and C.

Class A consists of neoplasms which are accessible and do not show any of the characteristics of high malignancy which I have tabulated. It includes most carcinomas of the lip and most small carcinomas of the cheek. In these growths both operation and irradiation give excellent results. Irradiation produces less deformity and appears not to endanger normal tissue if it is used with discretion and provided that direct involvement of bone is absent.

There is no doubt that some growths of the anterior two-thirds of the tongue belong to class A; but, until we are better informed regarding the characteristics which denote low malignancy in this situation, all growths of the tongue in front of the foramen cæcum must remain unclassified and treatment must be based on the assumption that wide impalpable extensions exist in every case. That this is not so is shown by the cures in Butlin's first series of cases and by the occasional modern case—I have only one—in which treatment has been very strictly limited on account of poor general condition and the patient has continued to live free from recurrence for many years. The small variations produced in the proportion of five-year cures by extension and contraction of the scope of treatment suggest that this proportion is decided more by the nature of the growth than by the therapeutic methods applied to it; but for the moment, while it is possible to say with certainty that many growths of the tongue belong to class C, it is only possible to guess at the proportion which belongs to class A. Hopes that irradiation would bring a larger proportion of cases into the curable class have not materialised to any great extent. The curable growths are the same whichever method is used, and I think at least two-thirds of them belong to class A. For the rest operation is the better means of palliation if there is no great difference between the sensitivity of the growth and that of its surroundings. In all other circumstances irradiation is better, for reasons which I shall state when dealing with class C.

When no metastases are present in class A, I do not use prophylactic irradiation in the neck, for there is no real evidence that it diminishes the risk of invasion of glands, and we are completely uninformed as to the effects of irradiation on the power which normal tissues undoubtedly possess of resisting the invasion by growth. I prefer regular observation to any form of prophylactic treatment, even dissection, for I believe that glands which increase so rapidly that they become unsuitable for operation in the three months which elapse between one routine observation and the next are unsuitable for operation from the beginning and can produce disastrous results even if dissection is made before they are palpably enlarged. I therefore reserve operation for glands which appear comparatively late and develop slowly. Rapidly extending glands place the original tumour outside class A, and I shall deal with them later.

Class B consists of growths which are inaccessible but again show none of the characteristics of high malignancy. To this class belong carcinoma of the floor of the mouth, carcinoma of the epiglottic region, and a proportion of pharyngeal and antral growths. These are curable by irradiation unless they actually invade bone; but, since they originate and spread in close proximity to bone and lie far from the surface of the body, I believe that the damage inflicted on normal tissue in the course of their cure by this method is unjustifiably great. Carcinoma of the floor of the mouth and of the epiglottic region can both be exposed by a median approach which involves little danger to life, and the operation for the removal of localised antral growths is equally benign. Carcinoma of the pharynx is a separate problem. My experience of it is small, but I believe that localised growths do occur in this situation, and that the effect of preliminary indirect treatment by removal of sepsis and irritation is a valuable guide to the degree of malignancy. That operation in suitable cases is

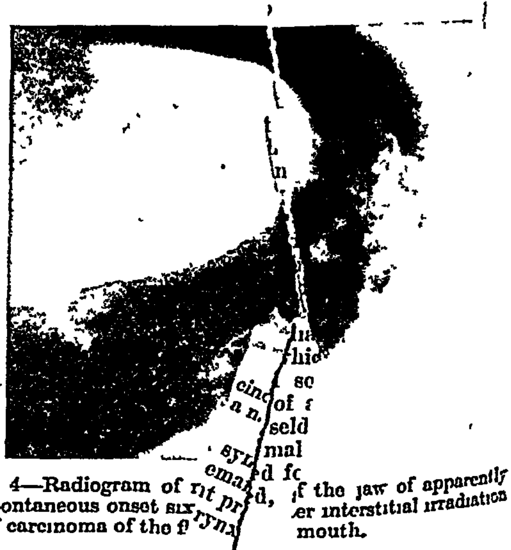

FIG. 4—Radiogram of ... f the jaw of apparently spontaneous onset six ... er interstitial irradiation of carcinoma of the f... mouth.

feasible and need place no undue strain on the vitality of the patient has been abundantly proved by the work of Mr Wilfred Trotter, and I cannot believe that irradiation across masses of normal and sensitive tissue will ultimately prove to be the correct treatment for localised growths of the pharynx

Growths of classes A and B which have been allowed to extend so that bone is involved before they are treated give the only opportunity for successful use of heroic and mutilating operations in the mouth and jaws I believe that such operations should only be employed when there are reasonable grounds for supposing that the wide extensions are due to neglect to seek advice and not to rapid progress and high essential malignancy of the growth, for these are the only circumstances in which results are obtained which are a fair reward for the sufferings of the patient

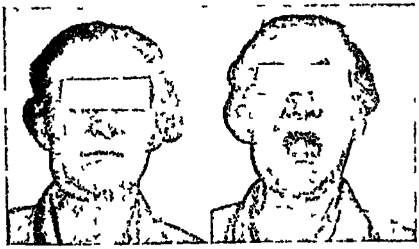

Fig 5—Photographs of a patient three weeks after resection of the jaw from the middle line anteriorly to the angle posteriorly The extent of mobility of the jaw is also shown.

Class C includes growths which exhibit the signs of high malignancy which I have described It is an important and varied group, and statistics show how large a proportion of cases of carcinoma of the mouth belong to it Operations designed for treatment of these cases must necessarily be extensive and mutilating, and I believe that they are seldom justifiable

Infiltrating carcinoma of the lower jaw must, however, be considered separately, partly because it is impossible even to impede the progress of the growth by irradiation without risking immediate necrosis of the jaw, and partly because the limitation of spread of the growth to a single organ makes operation a simple and comparatively benign method My experience does not justify me in asserting that operations can cure, however extensive they are, for only one of my patients has survived, and he was treated only two years ago I now employ a much more extended operation and am hopeful of its results, for in spite of its extent I do not think it need prove either severe or disabling The small amount of ulceration in the original lesion makes it easier to avert severe sepsis, and grafts may be used with a fair prospect of success to replace the large piece of jaw which must be resected Fig 5 shows a patient some three weeks after resection of the jaw from the middle line anteriorly to the angle posteriorly, and the movement of the jaw was roughly the same as that shown in the photograph from the time of operation A graft of rib together with its periosteum was used in this case

Growths which spread submucously are practically identical in their reaction to treatment with those showing anaplastic structure under the microscope Both generally destroy life in less than five years, and death is often due to remote metastases These growths follow the general rule in their association of extreme radiosensitivity with high essential malignancy The long term palliative results which can be obtained by the use of mass irradiation in these cases are very striking Fig 3 shows an infiltrating tumour of the upper jaw and illustrates the effect of six weeks' treatment. This patient died five years after the onset of her symptoms, the cause of death being uncontrollable local recurrence Irradiation may be freely used for the treatment of these tumours even when they involve bone, since the dose required to secure regression is small, the absence of sepsis from ulceration is a partial safeguard against immediate complications, and late complications are not a factor of importance on account of the short expectation of life

Tumours which show their malignancy by early appearance and rapid spread of metastases are a difficult problem If these or other tumours of high malignancy are subjected to extensive operation they are very liable to develop diffuse recurrence in the field of operation This suggests that growth is present not only in the primary lesion and the glands but also in the lymphatics between and among them, hence any cutting operation is likely to accelerate rather than to retard further spread of the growth Irradiation gives little hope of permanent cure, but satisfactory palliation is sometimes obtained, and, even if it does not impede the progress of the growth, it is unlikely to do harm and in this respect is greatly preferable to operation Even cases in which small lesions have proved to be resistant to adequate interstitial irradiation should not, in my opinion, be subjected at once to extensive supposedly radical operations, since they also are often highly malignant and very liable to diffuse recurrence Such cases are not very common, and I am not sure how it is best to handle them, but I believe that it is most profitable to treat them by a localised diathermy excision, embarking on more radical steps only in those cases which do not show a tendency to very early recurrence I have no doubt that diffuse recurrence is a worse fate than death from an untreated lesion, and I believe that the victims of really fast growing carcinoma who are subjected to attempts at radical operation run so great a risk of developing this complication that it is better to exclude them altogether from surgical treatment

I do not anticipate that the conclusions which I have reached represent a permanent standpoint I suspect that they are unduly sweeping in places, and I have no doubt that they will ultimately prove inaccurate in others. I feel, however, that treatment in this branch of surgery, as in many others in which rapid advances have taken place, has suffered from lack of a static period in which available data can be collected and reviewed, and that it is essential to clear thinking to create artificially such a period and to use it for the proper evaluation of the methods which we possess at the moment It is with this object in view that I have ventured to suggest the lines on which I believe the attempt can be made

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AUSTRALASIAN OPHTHALMOLOGICAL SOCIETY —The first meeting of this society will be held in Melbourne from April 19 to 22 under the presidency of Sir James Barrett Miss Ida Mann will attend the meeting as representative of the Ophthalmological Society of the United Kingdom and of the British Medical Association

ANGINAL SYNDROME DUE TO HYPOTHYROIDISM

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CLINICAL CHEMICAL PATHOLOGIST TO THE HOSPITAL

It does not appear to be generally recognised that typical symptoms of angina pectoris (including angina of effort) may be due to hypothyroidism and can then be relieved by thyroid extract We have observed a patient for three years who affords a good example of this condition, which has seldom been described

CASE-RECORD

The patient was a clerk, aged 44, who gave a history of measles as a child, influenza, and lumbago, but no serious illnesses. Anginal symptoms were first noticed in 1929. The pain was felt deep to the upper part of the sternum. It was then not very severe and came on after walking. It was relieved by eructation. For the next three years there was freedom from pain. Early in 1935 the pain was severe, and the patient could only walk a short distance in comfort. He attributed it to "a wind-pocket near the heart." He then consulted his doctor. The electrocardiogram showed no abnormality beyond left axis-deviation, the barium meal was normal, and the blood Wassermann reaction was negative. In May, 1935, he was sent to consult a cardiologist, who diagnosed "angina of effort" The heart was normal radiographically, and no further abnormality was found electrocardiographically.

On Nov 4, 1935, the patient was examined by one of us (G. E. B.), for he was now almost totally disabled by the pain, which came on by day and by night, on walking, on eating, and even on sitting quietly in a chair. The pain prevented him from sleeping for several hours at a time It was referred to an area deep to the upper part of the sternum, at the level of the second and third costal cartilages. It resembled a sensation of pressure, but there was no constriction round the chest. During the attacks the patient sweated and felt short of breath. They were usually relieved by trinitrin tablets His habits were temperate; he smoked about a dozen cigarettes a day and took no alcohol. He had given up smoking for six weeks, without obtaining any relief

His general condition was good, height 5 ft. 5½ in., and weight (clothed) 9 st. 13¼ lb. (highest known weight, 10 st. 8 lb.). His hair was normal, his complexion rather ruddy, and his skin not dry. There was nothing in his appearance to suggest myxœdema. He was alert mentally and physically. No abnormal physical signs were found The heart was not enlarged, clinically or radiologically (fig 1); the pulse was regular and the pulse-rate 60, and the blood-pressure was 125/70.

He was admitted to the Middlesex Hospital on Nov. 24, 1935, for further investigation. His basal metabolic rate (B M.R.) was −33 (Aub Dubois standard) on Dec. 3, 1935 The blood Wassermann reaction was negative. Cholecystography and a barium swallow both gave normal results. The blood-sugar curve was slightly low. The fasting blood-sugar was 100 mg. per 100 c.cm. After 50 g. of glucose by mouth the blood-sugar did not rise above 125 mg. per 100 c.cm. During the test no sugar and no acetone bodies were found in the urine. A blood-count gave the following figures:—

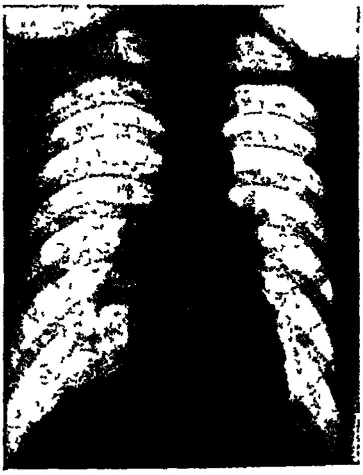

Fig 1—Radiogram of heart in angina due to hypothyroidism. No enlargement is evident

Red cells ..	. 5,950,000	Polymorphs	. 73%
White cells	.. 5600	Lymphocytes	. 24%
Hæmoglobin	.. 102 %	Monocytes ..	. 1%
		Eosinophils ..	. 2%

The red cells were normochromic and slightly microcytic. A fractional test-meal gave a high climbing curve (probably due to pylorospasm) Radiography of the chest revealed no abnormality in heart, aorta, or lungs. An electrocardiogram on Dec 5, 1935, showed left axis-deviation, T_1 normal, T_2 biphasic, and T_3 inverted (fig. 2A). The patient's temperature was subnormal.

In view of the fact that a few cases of angina due to myxœdema had previously been treated as described later, we decided to try the effect of thyroid

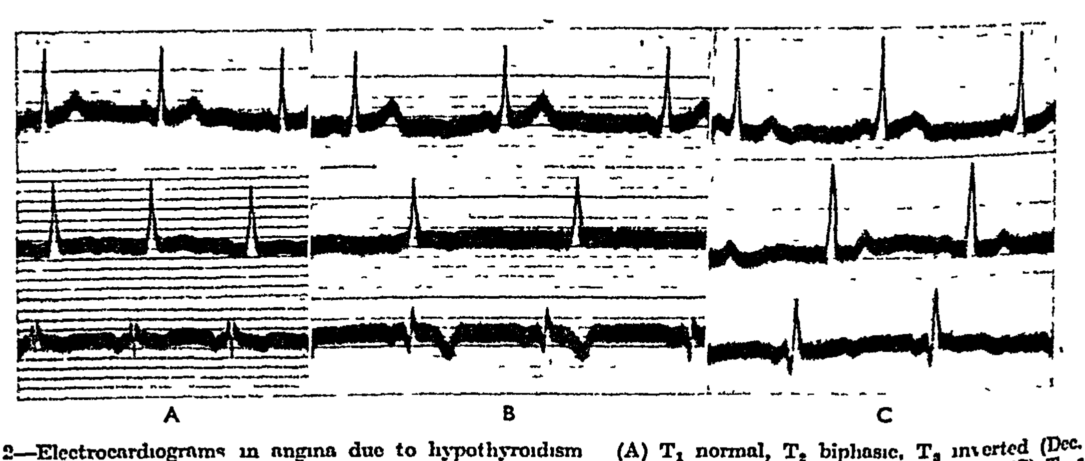

Fig. 2—Electrocardiograms in angina due to hypothyroidism (A) T_1 normal, T_2 biphasic, T_3 inverted (Dec. 5, 1935). (B) T_1 upright, T_2 slightly inverted, Q_3 pronounced, T_3 sharply inverted (Jan 3, 1936) (C) T_1 and T_2 upright, Q_3 slight, T_3 small and upright (April 29, 1938) All three electrocardiograms show left axis deviation.

extract A daily dose of gr 4 was followed by much improvement, the patient being completely free from pain for five days By Dec 12, 1935, however, the B M R had risen to −1 (Aub Dubois) and the patient was worse than on admission The thyroid extract was omitted, and some relief was obtained with trinitrin tablets, Luminal, aspirin, and Nepenthe By Dec 24, 1935, the B M R had fallen to −12 (Aub Dubois) and the patient was considerably better An electrocardiogram (E C G) on Jan 3, 1936, showed T_1 upright, T_2 slightly inverted, Q_3 pronounced, and T_3 sharply inverted (fig 2B) The electrocardiographic findings were those associated with ischæmic changes in the myocardium, such as might be due to repeated attacks of coronary spasm The patient was now comparatively comfortable and very sanguine about his recovery with thyroid treatment He left the hospital on Jan 4, 1936, and was ordered thyroid gr ¼ every third day B M R determinations and electrocardiograms have been subsequently made by us at intervals during the next two years and ten months The B M R readings and thyroid dosage are shown graphically in fig 3

PROGRESS REPORTS

Feb 5, 1936—Patient is working and has had very good days and nights No anginal pain since his return from hospital Walks half a mile at a time No trinitrin tablets for six weeks Still taking luminal gr. ½ thrice daily and aspirin gr 10 and nepenthe 20 minims at night Thyroid gr ¼ every third day B M R −18 (Aub Dubois) E C G shows T_1 and T_2 upright, Q_3, T_3 present, but T_3 less pointed (E C G improving)

April 4—Patient has been feeling "better every day" Full work in office Can walk a mile or so No pain Taking luminal gr ½ twice daily, but no aspirin and no nepenthe Thyroid gr ¼ every other day B M R −16 (Aub Dubois) Pulse-rate 58 Blood-pressure 120/80 E C G shows T_1 upright, T_2 inverted, Q_3 not present, and T_3 slightly inverted (E C G improving)

June 5—Patient reported on May 4, 1936, that he was feeling "better every day" Taking thyroid gr ¼ two days out of three After May 14, 1936 not so well, some pain Increased thyroid to gr ¼ daily Still some attacks of pain by day and night Taking luminal gr ½ twice daily and occasionally trinitrin B M R −22 (Aub Dubois) Pulse-rate 56 Blood pressure 120/70 E C G shows T_1 upright but flat T_2 inverted Q_3 again present, and T_3 more deeply inverted but blunt (E C G worse)

June 20—Has had two bad weeks with attacks of pain by day and night Thyroid gr ¼ thrice daily Has discontinued luminal B M R −25 (Aub Dubois) Pulse-rate 60 Blood pressure 104/70 E C G shows T_1 upright, T_2 biphasic, Q_3 present, and T_3 sharply inverted (E C G worse)

August 22—Patient feels not very good The days are much better than the nights Has increased thyroid, first gr ½ thrice daily then gr ½ four times daily, and then gr 1 thrice daily The last-mentioned dose made him much worse, with pain by night and day, radiating to the region of the right carotid artery He is now taking thyroid gr 1 daily B M R −24 (Aub Dubois) Pulse rate 60 Blood pressure 112/70 E C G shows T_1 flat T_2 upright Q_3 marked, T_3 flat (E C G slightly better)

Dec 5—Patient reported on Oct 1, 1936 that he felt fine—like his old self On Nov 4, 1936, he was walking 2–2½ miles a day In December he said, "What a transformation in a year" He was then taking thyroid gr ¼, ½, and ¼ daily B M R −20 (Aub Dubois) Pulse rate 56 Blood-pressure 116/76 E C G shows T_1 flat, T_2 biphasic, Q_3 slight, T_3 slightly inverted (E C G better)

May 15, 1937—He feels remarkably well No pain Thyroid gr ¼ thrice daily B M R −5 (Aub Dubois) Pulse-rate 54 Blood pressure 114/76 E C G shows T_1, T_2, and T_3 upright, and Q_3 slight (E C G better)

Oct 29—He says that he "feels A1" and "sings in the bath" Thyroid gr ¾ daily in three divided doses Patient tried reducing the thyroid and the pain returned B M R −25 (Aub Dubois) Pulse-rate 56 Blood-pressure 112/68 E C G shows T_1 upright, T_2 flat, Q_3 slight, and T_3 inverted (E C G slightly worse)

April 29, 1938—He says, "I have made a wonderful recovery" No pain Thyroid gr ¼ four times a day B M R −18 (Aub Dubois) Pulse-rate 64 Blood-pressure 128/80 E C G shows T_1 and T_2 as good upright waves, Q_3 slight, and T_3 small and upright (fig 2C) (E C G better) Weight (clothed) 9 st 11¾ lb

Nov 7, 1938—He feels very well Has climbed 199 steps No limitation to walking, and has run, playing children's cricket Thyroid gr ¼ four times a day B M R −16 (Aub Dubois) Pulse rate 56 Blood pressure 128/74 E C G shows T_1 rather flat, T_2 upright but small, Q_3 slight, and T_3 small and upright (E C G slight change) Weight (clothed) 9 st 12¾ lb

All electrocardiograms show left axis-deviation

DISCUSSION

Since Ord (1880) described the heart of a myxœdematous patient as being flabby and dilated, the cardiac manifestations of hypothyroidism have been noted by several observers, including Zondek (1918), Assman (1919), Fahr (1925 and 1927), and White (1937) The fully developed syndrome includes

(1) Heart markedly dilated to the left and right
(2) Dyspnœa on exertion
(3) Anasarca
(4) Passive congestion of the lungs and liver
(5) Sluggish action of the heart
(6) Abnormalities in the electrocardiogram including a uniform flattening or inversion of all the T waves
(7) Normal blood pressure

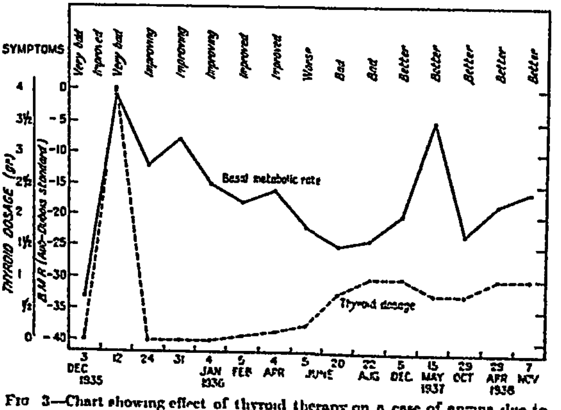

FIG 3—Chart showing effect of thyroid therapy on a case of angina due to hypothyroidism

Under adequate treatment with thyroid extract there resulted:

(1) A return of the size of the heart towards the normal with the relief of the cardiac decompensation.
(2) A livelier action of the heart.
(3) Gradual increase of T deflections to normal.
(4) No change in blood-pressure.

The cause of the dilated heart is by no means clear, and it is quite independent of the electrocardiographic changes which appear in myxœdematous patients who do not show any cardiac enlargement. Besides the above, several other isolated observations have been made on cardiovascular changes which cleared up on adequate thyroid therapy. These included incomplete heart-block (Luten 1920) and complete heart-block with Adams-Stokes syndrome (Willius 1924)

There is another symptom which has received scanty attention—namely, angina pectoris Apparently there are two distinct types of angina pectoris in myxœdema:

(1) A type which comes on only during treatment with thyroid and is not uncommon. It is believed to be due to the raising of the metabolism and blood-flow too rapidly, thus preventing the heart from keeping pace with the increased demands put on it. Support for this view is given by the morphological changes in the heart in experimental myxœdema in animals, as shown by Webster and Cook (1936), and in the necropsy findings of patients with spontaneous myxœdema (Sturgis 1926). Extensive atheroma of the aorta was found with arteriosclerosis of the smaller arteries all over the body, including the coronary vessels Angina after thyroid therapy in myxœdema has been noted by White (1937), Christian (1937), Fahr (1932), Blumgart, Cargill, and Gilligan (1930), Sturgis (1926), and Means, White, and Krantz (1926).

(2) A type which comes on in myxœdema before the administration of any thyroid and is relieved by adequate doses of thyroid It may be the most prominent symptom of the myxœdema The cause of the angina is uncertain but several explanations have been given: *(a)* a myxœdematous infiltration of the nerve-cells of the supporting connective tissue (Hertoghe 1914); *(b)* the anæmia which often accompanies myxœdema (Sturgis and Whiting 1925 and Sturgis 1926); and *(c)* hypotonicity of the myocardium (Laubry, Mussio-Fournier, and Walser 1924).

Only a few instances of this second type of angina have been recorded:

Sturgis (1926) reported a male, aged 57, with typical features of myxœdema and with anginal attacks relieved by nitroglycerin. The B M R. was −37. The symptoms disappeared completely with thyroid treatment, but when the B.M.R. rose to −7 they reappeared. They again disappeared with a metabolism of −17 to −13. The heart was dilated.

Ziskin (1930) recorded a case of a woman, aged 43, with myxœdema, severe anginal attacks, and a B.M.R. of −28. The heart was very slightly enlarged. With adequate thyroid treatment the anginal symptoms disappeared.

Beach (1935) recorded the case of a woman, aged 62, who was diagnosed as suffering from angina pectoris, always worse in cold weather. Her symptoms were partially relieved by taking as many as 21 trinitrin tablets (gr. 1/100) daily. She presented typical symptoms of myxœdema, differing thereby from our case. A remarkable improvement was obtained by the administration of thyroid gr. 2 thrice daily. Subsequently her B M.R. varied from −4 to −10. The electrocardiogram showed right axis-deviation, with T_1 negative and T_2 and T_3 iso-electric. The electrocardiogram returned to normal with treatment. The patient was kept free from all anginal attacks for several years with thyroid and was subsequently lost sight of.

Benestad (1937) described two cases, one a man aged 65, and the other a woman aged 34. Their B M.R.'s were −46 and −16 respectively, and in both cases the heart was enlarged. The symptoms disappeared with thyroid treatment, relief being obtained in the first case with a B M R of −27 and in the second at +1 to −3.

In all previously reported cases myxœdema was clinically obvious before the B.M.R. was estimated. In our case there was no clinical evidence of myxœdema, and this led to the initial diagnosis of angina of effort In the treatment of this case it was important to determine with some nicety the proper dose of thyroid Sufficient thyroid had to be given to raise the patient's metabolism above the myxœdema level to free him from anginal attacks On the other hand, if sufficient thyroid was given to raise the metabolism above a certain height (in the region of −1 to +1), the anginal attacks reappeared (December, 1935) It appears that anginal symptoms in myxœdema may result either from spasm or sclerosis of the coronary arteries or from myxœdematous changes in the cardiac nerve-cells and muscle. With the former angina comes on after overdosage of thyroid, and with the latter the anginal symptoms are relieved by adequate thyroid treatment The response of our patient to thyroid therapy suggests that both arterial and neuromuscular changes had taken place in the heart On this hypothesis the anginal pains which were temporarily relieved by thyroid at the beginning of the treatment were due to myxœdematous changes in the cardiac nerves and muscle Those which rapidly ensued with the continuance of the same dose of thyroid resulted from the arterial changes producing their effect as the B M.R. rose to about −1, owing to the thyroid dose being too great. For a few days in July, 1936, the patient again took too much thyroid, with a recurrence of anginal symptoms due to the arterial changes. During the summer of 1936, with the B M R. about −25, the anginal symptoms could be explained on the supposition that the myxœdematous changes in the neuromuscular tissues of the heart had not yet completely responded to thyroid treatment A year later, after continuous thyroid administration in small doses, although the B.M.R. again fell temporarily to about −23, the anginal symptoms did not recur This was possibly because the myxœdematous changes in the cardiac muscle and nerves had improved as the result of the thyroid treatment They would probably have reappeared if the B.M R. had been allowed to remain at this low level for a further period. It seems probable that the optimal B.M R in this case is between −10 and −17.

SUMMARY

(1) A case is described which was originally diagnosed as angina of effort. No clinical evidence of myxœdema was found, but the B M R was −33 Similar cases of the anginal syndrome associated with a low B.M R which we have been able to trace have all shown clinical evidence of myxœdema

(2) Under adequate treatment with thyroid the patient was enabled to return to work and lost his anginal symptoms.

(3) With either over- or under-dosage of thyroid there was a recurrence of his symptoms

(4) This case emphasises the fact that subtotal thyroidectomy for the relief of angina may incur

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the danger of increasing the symptoms unless myxœdema and "masked hypothyroidism" have been excluded

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CYCLOPROPANE "SLEEP" WITH PERCAINE SPINAL ANÆSTHESIA

IN MAJOR ABDOMINAL OPERATIONS

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What is the best anæsthetic for major operations on the abdomen, especially the upper abdomen? For eight years we have sought a method that is safe for the patient, allows radical surgery, and satisfies the anæsthetist We have tried gas-oxygen and ether with and without the passage of an endotracheal tube either nasally or orally, open ether and chloroform ether mixtures with and without Magill endotracheal tubes, and local infiltration of the recti muscles with Novocain (procaine) with and without inhalation anæsthetics

These methods were satisfactory to a point, but for one reason or another something better was desired In latter years Percaine spinal anæsthesia has been used with promising results, justifying further investigation to overcome the inevitable fall in blood pressure, the nausea, retching, and vomiting during the intra abdominal manipulation, and the psychological shock in the more nervous patients

The nausea, retching, and vomiting occurred during the manipulation of the stomach or the duodenum, or in fact any of the viscera in the upper abdomen It was particularly noticeable during exploration of the gall bladder and bile ducts and during rapid changes in the blood pressure, such as a fall during the above examinations and a rapid rise after the intravenous injection of ephedrine

These complications were alleviated by the administration of a mixture of carbon dioxide (5–15 per cent) with oxygen for two or three minutes But though this usually stopped the nausea, it caused a deterioration in the patient's psychological condition

The psychological shock due to the patient's instinctive distaste of consciousness during his operation was a persistent and undesirable feature. Attempts were made to minimise it with various combinations of pre-anæsthetics, such as Omnopon and scopolamine (hyoscine) Nembutal, Avertin, and rectal paraldehyde, but no preparation was consistently satisfactory Some patients remained alertly apprehensive throughout the operation, and for them nothing short of general anæsthesia was effective

A visit to the Lahey Clinic in Boston, U S A, revealed that abdominal operations there were carried out under spinal analgesia produced by Pantocain (Decicain), often combined with cyclo propane general anæsthesia The patients never had any of the complications just described, so we conducted a series of operations under combined spinal percaine anæsthesia supplemented by cyclopropane general anæsthesia. The observations began on Jan 1, 1937, and were so satisfactory that we decided to report our favourable experience

THE PRE-ANÆSTHETIC

Before induction the patient receives what we call the "triple injection"—namely, omnopon gr ⅓, scopolamine gr 1/150, and Coramine 0 85 c cm (half an ampoule)

This makes most patients drowsy and puts a few to sleep, but on some it seems to have little effect This dose of omnopon and scopolamine was chosen because we have found that larger amounts—e g, omnopon gr ⅔, scopolamine gr 1/100—depress the respiratory and cardiac centres, in some cases to a pronounced degree, particularly in patients over 60, rendering some comatose, and that sometimes apparently normal persons are hardly affected or react unusually to opium by vomiting or by shallow and infrequent respiration

The coramine, a central cardiac and respiratory stimulant, is added to neutralise the depression of the respiration We find the smaller doses mentioned, plus an individual explanation and assurance to the patient about the impending operation, consistently satisfactory The mental tranquillity attained by heavy narcotisation is not commensurate with the risks of difficulty during the operation and of post operative vomiting and pulmonary complications

THE SPINAL ANÆSTHETIC

The agent used was a solution of 1 in 2000 percaine throughout It was given by two techniques, each tried for six months

Technique 1 (the "head down foot down" method) was developed from Howard Jones's technique (Jones 1930) The dose varied according to the level of the operation, 16 c cm (the maximum) being used for a gastric or gall bladder lesion and 8 c.cm for operations on the anus or the legs

The puncture was made with the patient in the right or the left lateral position, the side of the operation always being uppermost—e g, for a gridiron appendicectomy the patient lay on the left side After injection of the anæsthetic the stylet was reinserted into the needle, the patient was turned on to his face, the head-piece of the operation table was lowered slightly, and the table as a whole was tilted foot down, so that the patient was in a head down foot-down position, the highest point being the second and third dorsal spines The amount of tilt was just short of enough to slide the patient off the table This position was maintained for 5–15 minutes, after 5 minutes the duration seemed to be immaterial the result being invariably satisfactory

The needle was kept in the theca until just before the patient was turned face upwards, this prevented the percaine from leaking from the puncture into the perithecal tissues before anæsthesia was effected The head was kept low throughout, a vital point

When the operation was on a strictly localised area such as a gridiron appendix, the kidney, or an inguinal hernia, after the injection the patient was kept in the lateral position and not turned on the face, the table being again arranged with the head and the feet down. A very satisfactory hemi- or quadri-anæsthesia followed; the muscle power and some sensation were still present in the lower side.

After 5–15 minutes the patient was placed in the position for operation, the cyclopropane was started, and the operation began shortly afterwards.

Technique 2 was begun in July, the head-down foot-down method being discontinued for the four following reasons:

(1) There was some difficulty in making the puncture with the patient lying in the lateral position, particularly in fat and elderly patients, except by those especially skilled.

(2) The lifting and moving entailed were sometimes irksome because of the patient's weight, the shortage of nurses, and the psychical trauma

(3) Some patients with stiff spines did not give a good head-down foot-down position.

(4) The method was unsuitable for perforated peptic ulcers and general peritonitis, the movement being detrimental to the patient.

Technique 2 was based on that of Etherington Wilson (1934), the percaine still being a solution of 1 in 2000 and the dose 16 5 c cm. for the high levels, with a corresponding reduction for lower operations. The injection was made with the patient in the sitting position, and the time of sitting up was 65 seconds for the high procedures and for small doses the last two figures of the dose—e g , 40 seconds for 14 0 c cm and 20 seconds for 12 0 c cm—the time being reckoned from the moment the injection was started

This method also gave satisfactory results, although the anæsthesia was not quite perfect and the patient was never flaccid, some muscle tone usually remaining and both sensation and contractility apparently returning after 1½–2 hours

In both techniques the puncture was made between the second and third lumbar spines, or the fourth and fifth for the bladder and anus, or the first and second for the breast.

THE CYCLOPROPANE ADMINISTRATION

The machine used on all these cases was a Heidebrink continuous-flow machine with a closed-circuit absorber. After the spinal anæsthetic had been administered and the patient replaced in the dorsal decubitus, the circuit was filled two-thirds full of oxygen and the mask applied to the patient's face, care being taken to avoid leakage of air under the face-piece Cyclopropane was run into the circuit at the rate of 500 c cm. a minute, until the required depth of anæsthesia was obtained This was usually 1500–2000 c cm., varying from case to case

Very light surgical anæsthesia was all that was required. The lid-reflex was present throughout. In many cases it was necessary to add 250–300 c cm. of cyclopropane from time to time, to maintain the necessary level of anæsthesia Oxygen, about 450 c cm. a minute, was generally necessary. Endotracheal tubes were never used

The advantages of this method were as follows:—

(1) Nausea, retching, and vomiting during operation never occurred.

(2) Cyclopropane and oxygen, without the administration of any other drugs, were sufficient to raise the blood-pressure at least 10 mm. Hg.

(3) The breathing throughout was slow and smooth, maintaining tranquillity, which is so essential in upper abdominal surgery.

(4) Major thoracic postoperative complications were absent, because cyclopropane is non-irritating in such low concentrations. A few patients had a transient cough, but not sufficient to justify the label of "chesty" or pneumonia.

(5) There was a rapid return to consciousness with normal breathing permitting early aeration of the lungs.

(6) Cyclopropane has been proved non-toxic to the liver and has no ill effects on the kidneys.

In the dosage suggested, the concentration remains about 10–15 per cent. cyclopropane and 85–90 per cent oxygen, and no toxic cardiac symptoms will be produced. No patient had any cardiac arrhythmia or sudden change in rate which could be attributed to the cyclopropane There has been occasional but not severe vomiting

SEDATION AFTER OPERATION

The postoperative sedative was morphine gr. ⅙ and coramine 0 85 c cm , called the "twin injection" The morphine was never given without the neutralising cardiac and respiratory tonic, nor was it ever given in doses larger than gr. ⅙ If necessary, it was repeated after two hours, but heavy narcotisation was avoided

During the last two months heroin gr. 1/12 was substituted for the morphine apparently with satisfactory results; there was no specific objection to the morphine, nor was any advantage in heroin observed

Before the postoperative dose was fixed, morphine gr. ¼ or omnopon gr. ⅔ was occasionally used, and sometimes alarming depression of the cardio-respiratory centres followed, occasioning great anxiety by the poor pulse and feeble respiration, and in one case of carcinoma of the breast a fatal coma followed No such concern has arisen in hundreds of major operations since the adoption of the twin injection described above.

ANALYSIS OF OPERATIONS

The operations were as follows.—

Radical amputations of the breast for carcinoma	8
Posterior gastro-enterostomies .. .	2
Partial gastrectomies	9
Cholecystectomies and explorations of the common bile-duct	7
Laparotomies and bowel resections (carc coli)	9
Appendicectomies	13
Hæmorrhoidectomies	3
Kidney and ureter operations	6
Bladder and prostate operations	2
Testicle operation	1
Inguinal herniotomies (double or unilateral) ..	6
Femoral herniotomies	2
Excision of cartilage of the knee . . .	1
Ligature and injection of varicose veins . .	1
Total	70

Technique 1 was used in 46 operations and technique 2 in 24.

The results have been good. Three deaths occurred in the 70 cases and were due to (1) parotitis and general debility four weeks after a complete gastrectomy (technique 2) for a high ? malignant gastric ulcer; (2) hæmorrhage, 72 hours after a partial gastrectomy (technique 2) for a gastric and duodenal ulcer, due to a change in the method of suturing, which has since been abandoned; and (3) a subphrenic abscess three weeks after a partial gastrectomy (Billroth I by technique 1) for a gastric ulcer. These deaths after partial gastrectomy were out of a series of 30 patients; the others are not included, because cyclopropane was not used.

COMMENTS

The fall in blood pressure was common to both techniques, perhaps it was rather more frequent and more pronounced in technique 1. In few cases was preliminary ephedrine used, but in our experience the effect of gr ½–¾ is so uncertain that its use is not justified. Charts recording the blood pressure and pulse rate of every case were kept, and, when the systolic pressure fell to 80 mm Hg, ephedrine gr ½ was injected intravenously and approximately restored the normal level in 30 seconds. These intravenous injections of ephedrine were developed by us in 1933 and have been used continuously since, with consistently good results. Ephedrine is never administered subcutaneously or intramuscularly, for with a depressed blood circulation its action is slow and uncertain. Cyclopropane tends to keep the blood-pressure from falling.

Patients have expressed satisfaction with the pleasant sleep induced, and the elimination of psychical trauma tends to prevent the development of shock.

The absence of severe pulmonary complications is attributed to the care taken before operation, maintenance of blood pressure throughout the operation, thus avoiding a pre shock condition, rapid return of consciousness, with the cough reflex, when the operation is finished, rarity of vomiting (a few patients vomited after operation, but these were exceptional and always provoked comment for this reason), periodic (four hourly) ventilation of the lungs with O_2 and CO_2 during the first twenty four hours, and cautious postoperative use of morphine and hyoscine.

The spinal anæsthesia, techniques 1 and 2, allows radical surgery with a good exposure. With technique 2 the injection is easier, but the anæsthesia and muscle relaxation tend to wear off sooner than with technique 1. In the 1938 programme modifications have been introduced to overcome this.

The 1 in 2000 solution of percaine was used with the object of reducing the amount of toxic drug and of enhancing the factor of an anæsthetic medium lighter than cerebrospinal fluid, thereby exploiting further Howard Jones's principles. Both expectations were realised, and quadrilateral and hemi-anæsthesias were made possible. A further hope, which was not fulfilled, was that the vasoconstrictor nerves might be more resistant to the 1 in 2000 solution than to a 1 in 1500 solution, and that the fall in blood pressure would be lessened.

The radical amputations of the breast were smoothly and expeditiously performed with this combination of anæsthetics. Pantocain was injected above the clavicle, because the suprasternal, supraclavicular, and supra acromial nerves are not included in spinal anæsthesia.

Postoperative headaches after spinal anæsthesia are a tiresome complication. The technique described here does not abolish them; they occur in 5–10 per cent of cases, but they yield to the following remedies, tried in this order:—

(1) A.P.C. (aspirin, phenacetin, caffeine) tablets and ephedrine gr ½ by mouth four-hourly for two days.

(2) Sodium chloride, 20 c cm of a 30 per cent solution, injected intravenously and repeated once more if necessary. Patients are warned that an initial aggravation with a sensation of heat and hot flushing for 20–30 minutes will occur, after which relief follows.

(3) The patient is placed in the extreme Trendelenburg position for 30–60 minutes once or perhaps twice.

We have never seen these measures fail to give relief.

SUMMARY

(1) A combination of percaine spinal with cyclopropane general anæsthesia was used in seventy major operations, mostly abdominal.

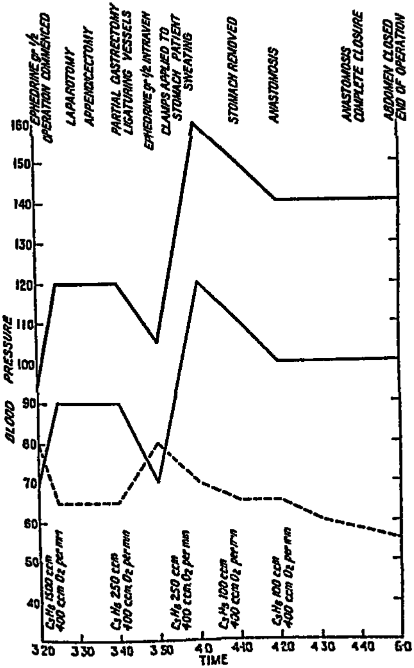
(2) The pre anæsthetic used throughout the series was omnopon gr ⅓, scopolamine gr 1/150, and coramine 0 85 c cm.

(3) The spinal anæsthetic was a 1 in 2000 solution of percaine.

(4) The general anæsthetic was cyclopropane delivered through a Heidebrink continuous flow machine. Oxygen was usually necessary.

(5) The advantages of this method are the tranquil respiration, a rapid return to consciousness, and the absence of nausea and vomiting during the operation and of major thoracic postoperative complications. Cyclopropane tends to keep the blood pressure from falling and has no toxic effect on the liver or the kidneys.

(6) The postoperative sedative was morphine gr ¼ (or alternatively heroin gr 1/12) and coramine 0 85 c cm.



Blood pressure chart during partial gastrectomy on a man of 45. The thick line (top) represents the systolic pressure, the thinner line the diastolic pressure and the interrupted line the pulse pressure. Before operation the patient had omnopon gr 1/3, scopolamine gr 1/150, and coramine 0 85 c cm. The anæsthetic was 14 5 c cm of 1 in 2000 percaine (injected at the 3rd–4th lumbar interspace with the patient in the head-down foot down position) plus cyclopropane and oxygen in the quantities shown.

(7) Three patients died: one after a complete gastrectomy; two after a partial gastrectomy.

(8) The addition of cyclopropane "sleep" to spinal anæsthesia is an undoubted improvement, a pleasant and effective anæsthetic for the patient, and a material aid to the surgeon in operations on the upper abdomen

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PULMONARY TUBERCULOSIS

DISAPPEARANCE OF TUBERCLE BACILLI FROM SPUTUM DURING TREATMENT

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We have investigated the results of repeated sputum tests in 791 cases discharged from the Forster Green Hospital between Jan. 1, 1932, and May 31, 1938. The investigation includes all tuberculous patients with a positive sputum on admission who were treated in hospital for more than a hundred days, with certain exceptions enumerated below. Therefore it excludes a considerable number of far advanced cases in which the patient remained in hospital a short time or died soon after admission; also a small number of "early cases" in which the patient remained in hospital less than a hundred days. Eighteen cases in which tubercle bacilli were isolated from the sputum by culture only are excluded from the series. Forty-one other patients, who on admission showed tubercle bacilli only after petroleum ether concentration, are considered in a separate series Four other cases are excluded which were negative on admission, direct and on concentration, but showed tubercle bacilli before discharge.

Procedure as regards sputum tests—Three smears were examined on successive days unless the first or second smear was positive, and if all these were negative a petroleum ether concentration test was done. The same procedure was carried out at the end of every three months as long as the patient remained in hospital In some cases it was not possible to do a test before the patient was discharged, because the patient had ceased to have sputum, even after a laryngeal-reflex test

CLASSIFICATION AND TABULATION OF RESULTS

Three main groups have been differentiated according to the severity and extent of the lesions as seen on the initial radiogram

Group A.—Discrete or limited areas of mottling in one or both lungs, without cavity (table I).
Group B.—Discrete or limited areas of mottling in one or both lungs, with cavity (table II).
Group C.—All cases with extensive and heavy areas of mottling, with or without cavity (table III).

A separate subdivision of these three groups has also been made in accordance with the treatment adopted (tables IV and V)

Group 1.—Artificial pneumothorax (A.P.) with some degree of collapse.
Group 2.—Phrenic avulsion or crushing.
Group 3.—All other cases.

The results have been tabulated in two ways: (1) at the end of six months' treatment (for simplification, those patients who remained in hospital more than a hundred days but less than six months are included with those who remained six months); and (2) on discharge from hospital. In the case of those patients who remained six months or less, the result at the end of six months and the result on discharge are, of course, the same In the case of patients who remained in hospital more than six months the result at the end of six months and the result on discharge may differ. Very few of the patients remained in hospital more than twelve months, and none remained more than two years The cases with no sputum after treatment are shown as "T.B. negative direct" The cases shown as "T.B positive on concentration" were all T.B. negative on three consecutive tests before the concentration test was done

Analysis of the group (41 *cases*) *T B positive on concentration only.*—Of these cases 23 belong to group A, 7 to group B, and 11 to group C. Artificial pneumothorax was done in 6 cases and phrenic avulsion or crushing in 6 cases. The results on discharge were as follows: 1 case T B positive by direct smear; 5 cases T.B. positive on concentration, 12 cases had no sputum before discharge from hospital; and the remaining 23 cases were T B. negative after concentration Thus it appears that the chances are good in this group for the disappearance of tubercle bacilli, and that collapse therapy is only indicated in a minority.

TABLE I—GROUP A, DISCRETE OR LIMITED AREAS OF MOTTLING IN ONE OR BOTH LUNGS, WITHOUT CAVITY (106 CASES)

Sputum		After 6 months or on discharge before 6 months		On discharge	
T B − (D)	..	27	67 %	28	77 %
T B − (C)	..	36		47	
T B + (C)	..	8		7	
T B + (D)	..	35	33 %	24	23 %

TABLE II—GROUP B, DISCRETE OR LIMITED AREAS OF MOTTLING IN ONE OR BOTH LUNGS, WITH CAVITY (174 CASES)

T B − (D)	..	34	54 %	48	72 %
T.B − (C)	..	45		64	
T B + (C)	..	15		13	
T.B + (D)	..	80	46 %	49	28 %

TABLE III—GROUP C, EXTENSIVE AND HEAVY AREAS OF MOTTLING, WITH OR WITHOUT CAVITY (511 CASES)

T.B − (D.)	..	58	25 %	76	38 %
T B − (C)	..	46		90	
T.B + (C)	..	25		27	
T B + (D)	..	382	75 %	318	62 %

(D) = direct, (C) = concentrated

COMMENTS

The results of repeated sputum examination show that there is a very considerable chance of tubercle bacilli disappearing from the sputum after a few months' treatment in "early cases," with or without cavity. Two-thirds of group A and more than half of group B became T.B. negative on direct examination within six months The results appear to show

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the advantage of A P in rendering the sputum negative, especially in view of the fact that the more severe cases in groups A and B had this treatment Naturally group C shows inferior results, and it is here that the results of A.P show the greatest superiority over the other groups The effect of phrenic avulsion or crushing is much less, partly owing to the fact that this *treatment* has been reserved for unsuccessful A.P cases and cases in which A P was contra-indicated Cases in which the phrenic operation has been combined with A P are tabulated in the A P group

TABLE IV—GROUPS A AND B COMBINED, WITH DISCRETE OR MODERATE LESIONS, WITH OR WITHOUT CAVITY, CONSIDERED WITH REFERENCE TO SPECIAL TREATMENT ADOPTED (280 CASES)

Sputum	After 6 months or on discharge before 6 months						On discharge					
	1 A.P	%	2 P A	%	3 No collapse treatment	%	1 A P	%	2 P.A	%	3 No collapse treatment	%
T B − (D)	31	64	7	35	23	60	46	86	10	53	20	63
T B − (C)	51		5		25		72		7		32	
T B + (C)	13		—		10		10		1		9	
T B + (D)	51	36	22	65	39	40	21	14	16	47	36	37
Total	149		34		97		149		34		97	

TABLE V—GROUP C, WITH EXTENSIVE OR HEAVY AREAS OF MOTTLING, WITH OR WITHOUT CAVITY, CONSIDERED WITH REFERENCE TO TREATMENT (511 CASES)

Sputum	After 6 months or on discharge before 6 months						On discharge					
	1 A.P	%	2 P A	%	3 No collapse treatment	%	1 A P	%	2 P.A	%	3 No collapse treatment	%
T.B − (D)	43	36	8	12	7	15	54	55	12	18	10	18
T B − (C)	37		5		4		77		9		4	
T.B + (C)	17		2		6		19		2		6	
T B + (D)	176	64	112	88	94	85	123	45	104	82	91	82
Total	273		127		111		273		127		111	

It is unwise to conclude that any special form of treatment for pulmonary tuberculosis, such as tuberculin, Sanocrysin, or A P, has specific therapeutic action on the grounds that many cases with early or moderate lesions become negative after such treatment It appears that a considerable proportion of "early cases" will become negative after ordinary sanatorium treatment

During the past few years it has been customary in the Forster Green Hospital to give early T B positive cases at least three months' rest in bed, and in our opinion this practice has helped to improve the results An effort has also been made to persuade patients to rest in bed pending admission, and the results of treatment have been strikingly better in those who have followed this advice

SUMMARY

(1) The results are analysed of repeated sputum tests for the presence of tubercle bacilli in 791 cases of pulmonary tuberculosis classified according to lesions and treatment (2) The results show that (*a*) there is a very considerable chance of tubercle bacilli disappearing from the sputum after a few months' treatment in early cases, (*b*) artificial pneumothorax helps to render the sputum free from tubercle bacilli, and (*c*) phrenic avulsion or crushing has much less effect than artificial pneumothorax in rendering the sputum free from tubercle bacilli

STRICTURE OF THE SMALL INTESTINE

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STRICTURE of the small intestine receives but scant attention in medical text books *Admittedly* it is not common, and symptoms *associated* with it are sufficiently vague to render diagnosis difficult; nevertheless the importance of early diagnosis is *manifest*, so that the patient may avail himself of surgical treatment

ÆTIOLOGY

The low incidence of stenosis of the small bowel, compared with that of the large bowel or of the stomach, is explained by the tendency to non sclerosing healing of specific ulcerations (except tuberculous ulcers) and by the relative rarity of malignant tumours of the small intestine

The causes of stricture of the small intestine can be dealt with under three headings, congenital *abnormalities*; cicatricial contractures of destructive lesions, and neoplasms

Congenital abnormalities—Strictures due to defective development are usually situated at the junction of the fore- and mid gut, they are *also* found in *association* with a Meckel's *diverticulum, resulting* either from ulceration of the gut at the opening of the pouch or from simple narrowing at or above the origin of the diverticulum

Cicatricial contractures may be of various origin —

Injury to the small intestine causing contusion or rupture may be followed by a fibrous stricture Strictures at the site of a purse-string suture, anastomosis, or constricting groove of a strangulated hernia have also been described

Tuberculosis of the small intestine is probably the most important of all the causes Both the so-called *primary* (hyperplastic) and secondary (ulcerative) lesions are *probably* always secondary to a focus in the lungs, mediastinum, or mesentery, although in the more uncommon *hyperplastic type* the focus is often latent The ulcerative *form* is *not uncommonly* a complication of active pulmonary disease, this is confirmed by the figures given by Brown and Sampson (1932), showing that the intestines are tuberculous *in 50–60* per cent of patients dying of pulmonary *tuberculosis* Stenosis of the intestine develops in comparatively *few* cases because death ensues before the *ulceration* can heal It is the subacute and chronic *types of* tuberculosis which ultimately lead to stricture, this is seen always in the hyperplastic type and occasionally *in the ulcerative* type when the primary lung condition *is not* lethal Chronic hyperplastic tuberculosis localised to the small bowel is extremely rare, the cæcum and ascending colon being usually affected, up to 1931 7 cases *had* been described by Counseller (1931) and 1 case by Chi (1931) Chronic ulcerative tuberculosis more commonly affects the distal portion of the ileum but may spread beyond the ileocæcal valve to the cæcum, appendix, or ascending colon White *and* Jankelson (*1932*) and Muir (1934) also described tuberculous strictures of the jejunum

Both the hyperplastic and the chronic ulcerative types are important *in that* chronic obstruction of the small bowel is not uncommon, although in the hyperplastic type there is *also* some obstruction in the cæcum and ascending colon *The appearance* of the bowel depends on the stage of the disease The more active stage shows the typical encircling ulceration gross thickening of the bowel wall with miliary tubercles in the peritoneum, and enlarged mesenteric glands. The more chronic cases show numerous peritoneal adhesions, cicatricial contractures of the bowel, dilated bowel between the strictures, and hypertrophy proximal to these strictures.

Non-specific granuloma, mistaken in the past for tuberculosis and first recognised as a clinical and pathological entity by Crohn (1932), has been described under various titles, including regional ileitis and localised hypertrophic enteritis. Erdman and Burt (1933) in a report of several cases of this condition attribute the first description of this disease to Braun in 1909. Colbeck, Hurst, and Lintott (1937) recently reviewed the subject and described further cases In this condition the last 2 ft. of the ileum is grossly thickened, all layers of the gut being chronically inflamed. The mucous membrane may be ulcerated, especially on the mesenteric border. It is stated that an important point of differentiation from tuberculosis is the relative absence of adhesions. External fistulæ and perforation into other loops of small bowel or colon have also been described. Superadded fibrosis converts the affected portion of ileum into a rigid narrow tube, at which stage intestinal obstruction may arise. The earlier symptoms are said to resemble those of acute appendicitis or of ulcerative colitis.

Other destructive lesions of the small intestine rarely cause stenosis Syphilis and actinomycosis are extremely uncommon, and typhoid ulcers usually heal with minimal scarring, although there is always the possibility of a stricture after perforation and/or repair of a typhoid ulcer.

The third cause of stenosis is *neoplasms* —

The rarity of *carcinoma* of the small intestine is exemplified by the figures given by Rankin and Mayo (1930) and Vick (1932). Rankin and Mayo found that 0 062 per cent. of carcinomas of the alimentary tract affected the small bowel, and, included in Vick's statistics of acute intestinal obstruction, out of 899 cases of carcinoma of the intestine 17 cases (1·89 per cent.) affected the small intestine. The tumour is usually situated at the lower end of the ileum and may be stenosing, polypoid, ulcerative, or multiple. Degenerative changes may also occur. Microscopically the tumour is an adenocarcinoma with a varying amount of fibrous stroma.

Sarcoma is rarely found in any portion of the alimentary tract but is probably commoner in the small than in the large bowel. It may be polypoid or annular, and microscopically it may consist of round or of spindle cells or be a lymphosarcoma Ullman and Abeshouse (1932) recorded 1 case and collected 125 others, in addition to 250 collected by Graves in 1919 These authors state that sarcoma is twice as common in the small as in the large intestine, males are affected more commonly than females, and the average age is thirty-three. Aneurysmal dilatation of the lumen at the site of the growth has also been described.

Carcinoid tumours are extremely rare in the ileum, the appendix being the commonest site. Wood (1936) stated that 152 cases had been recorded up to the latter part of 1934

Innocent tumours (benign polyps) are rare and unlikely to cause stenosis.

SYMPTOMS AND SIGNS

The clinical picture of chronic obstruction of the small bowel is always the same, whatever the underlying pathology

Abdominal pain is the earliest symptom but its quality and site are not characteristic It is usually colicky, although in inflammation it may be more of a dull ache Occasionally the patient complains of a feeling of distension The pain may be situated almost anywhere in the abdomen In the first of our cases epigastric pain was complained of, whereas in the second the pain was located in the right iliac fossa A study of conditions reported as causing obstruction of the small intestine showed that the site of the pain did not indicate the portion of bowel affected or the underlying pathological process Pain has been described in the right iliac fossa, epigastrium, umbilical region, and hypogastrium and may be related to meals Vomiting, when present, has been described as relieving the pain At first the attacks of pain occur at intervals of weeks or months, later becoming more frequent If, as in one of our cases, acute obstruction supervenes, the pain is persistent and colicky. The duration of symptoms varies from months to years in chronic inflammation, such as is seen in the common form of tuberculosis, and about three to six months in malignant disease

Vomiting was absent in one of our cases, in spite of a three years' history of abdominal pain, and occurred in the second case only when acute obstruction came on The absence of vomiting in our cases appears to be unusual, for in most of the reported cases of tuberculous or cancerous strictures of the ileum vomiting was common though fairly late In one case of carcinoma of the ileum described by Wakeley (1932) the patient noticed in the vomit particles of food which had been eaten several days previously

Bowel action —We were surprised to find the frequency with which constipation was reported in various conditions causing stenosis of the small bowel It appears to us that, in view of the fluid contents of the small bowel, there is no reason why constipation should occur before the obstruction is severe This was certainly so in both of our cases; constipation was absent in one and occurred in the other only with the onset of acute obstruction. Diarrhœa may be present in active inflammation—for example, tuberculosis in an acute phase—when rapid emptying of the small bowel takes place.

Other symptoms —Anorexia, malaise, loss of weight, and febrile bouts may be early symptoms; but these are typical of tuberculosis or of carcinoma anywhere in the body.

Physical signs —Anæmia and signs of recent loss of weight are not uncommon, suggesting an organic lesion Examination of the chest even in tuberculous stenosis is usually negative

Abdominal examination.—In the early stages it is unlikely that abdominal examination will reveal any abnormality. When obstruction becomes more severe, distension may be obvious, especially in the umbilical and upper abdominal regions It is only in the later stages that distended coils of intestine with a ladder pattern and visible peristalsis are seen Palpation may reveal a tumour, especially in the right iliac fossa, the palpable mass being either inflammatory or neoplastic More frequently there is nothing more than muscular rigidity and tenderness, especially in an active tuberculous lesion In the more advanced cases auscultation may be of value in diagnosing obstruction. Burgess (1932) called attention to the value of this sign, so often neglected The loud gurgling was well heard in one of our cases

Stools —In carcinoma of the small bowel there may be melæna, or more commonly the blood is occult. The stools should always be examined in a case of abdominal pain, for the presence of occult blood strongly suggests an active ulcerative lesion, but the occult-blood test may be positive when intestinal adhesions alone are present. Tubercle bacilli should be looked for but are rarely found except in fairly advanced pulmonary tuberculosis

Radiological examination —A barium sulphate meal, although its value has been disputed, is probably the best method of early diagnosis Only a little barium should be swallowed, for it is difficult to obtain a clear outline of the small intestine A small quantity of barium emulsified with liquid paraffin may be given Gage (1937) gives 4 oz of a barium-water mixture, the patient being kept prone throughout the examination and examined radiologically at hourly intervals up to five or six hours The important points to look for are (1) dilatation of the small bowel above the stricture with slow transit of the barium, (2) vigorous painful peristalsis ending at the site of obstruction, (3) filling defect and narrowing at the site of the lesion, and (4) fatigue distension of the obstructed coils When obstruction is advanced, a straight radiogram of the abdomen may be useful as in acute intestinal obstruction The patient is examined recumbent for gas patterns and standing for fluid levels Obstruction at or above the cæcum is indicated by the absence of a gas filled colon and by fluid levels and gas patterns in the small intestine Radiography of the chest should be included in the investigation Enlarged hilar glands, with old or recent apical lesions, would suggest tuberculosis of the small bowel

DIFFERENTIAL DIAGNOSIS

The diagnosis of chronic obstruction of the small bowel, especially in the early stages, can be made only after full investigation The abdominal pain is indefinite, and the action of the bowels may or may not be disturbed The symptoms may simulate chronic appendicitis, which can only be excluded by a barium meal Indeed, this examination is essential for diagnosis and should always be performed when a patient complains of chronic abdominal pain and the stools contain occult blood The palpable mass in the right iliac fossa and/or a filling defect of the ileum should suggest a tuberculous or carcinomatous lesion Evidence of a recent or an old pulmonary lesion would suggest tuberculosis, especially in a patient under forty Even at operation it may be difficult to decide whether the lesion producing the obstruction is due to tuberculosis, carcinoma, or regional ileitis, and the ultimate diagnosis will be left to the pathologist

CASE-RECORDS

CASE 1—A male Hindu aged 15, was admitted to the Kolar Gold Fields Hospital on Sept 17, 1937, complaining of abdominal pain For the past three years the patient had had indefinite pain in the right iliac fossa at intervals of a fortnight to six months and lasting about two hours, it was not related to meals, and relief occurred spontaneously For the previous six months the pain had become more severe and of longer duration, and the patient noticed that he was losing weight There had never been constipation, diarrhœa, or vomiting There was no history of cough

The patient showed obvious signs of recent loss of weight and looked ill His temperature was 98 2° F and his pulse rate 80 The tongue was dry and furred, and the heart and lungs showed no abnormality The abdomen was not distended, and a tender mass with an indefinite outline was palpable in the right iliac fossa but could not be felt on rectal examination No abnormal constituents were found in the urine

Investigations—Three stools were examined but no occult blood and no tubercle bacilli were found (Antiformin method) Blood examination showed hæmoglobin 60 per cent red cells, 4 000,000 per c mm, colour index 0 75 white cells, 8000 per c mm (polymorphonuclears 68 per cent, lymphocytes 21 per cent, large mononuclears 2 per cent, and eosinophils 8 per cent)

Radiography of the chest showed no enlarged mediastinal glands and no sign of healed or active tuberculosis The patient was examined four hours after swallowing 10 oz of a watery emulsion of barium sulphate, this was seen to have reached the transverse colon, a narrowing of the terminal ileum was visible with some distension of the ileum proximal to the filling defect The cæcum appeared to be deformed and contracted (fig 1)

The patient was kept under observation for a fortnight, during which he was slightly feverish, with a temperature of 99°–100° F His general condition slowly deteriorated, and it was thought that the narrowing of the terminal ileum seen in the radiogram justified an exploratory laparotomy to exclude carcinoma of the ileum or cæcum, although tuberculosis of this region was considered more probable

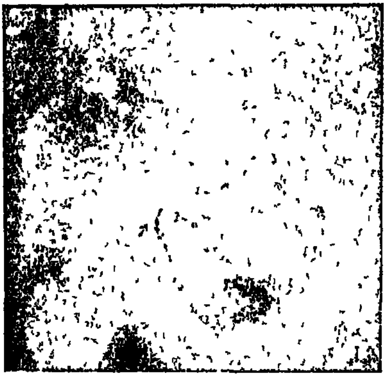

FIG 1—Radiogram taken four hours after barium meal showing that barium sulphate has reached transverse colon, which is adherent to small intestine Arrow marks site of stenosis Ileum proximal to stenosis is dilated, and capacity of cæcum is diminished

Operation—An exploratory laparotomy was performed on Sept 23, 1937, through a right paramedian incision The cæcum was found adherent to the posterior abdominal wall, and there were numerous adhesions between the ileocæcal region and the anterior abdominal wall The terminal 6 in of the ileum and cæcum were thickened, and small tubercles could be seen in the peritoneal coat About 2 in from the ileocæcal valve the ileum was circumferentially fibrosed, the mesenteric edge of the cicatricial ring being puckered and contracted A few enlarged glands were present in the mesentery A resection of the affected ileum and cæcum was considered, but it was thought that the patient was too ill to stand this One of the enlarged glands was removed for section, and a simple appendicectomy was performed

Microscopical examination of the mesenteric gland showed typical tuberculous giant-cell systems

Course after operation.—The patient made a slow recovery, the pyrexia persisting for three weeks He was treated on general antituberculosis lines He stated that he was free from pain and felt much more comfortable after the operation The action of his bowels was normal throughout his stay in hospital Seen four months after the operation, he stated that he had put on a stone in weight and was free from abdominal pain; his general condition had obviously much improved A barium meal repeated at this time showed very little change in the ileum and cæcum He is being kept under observation, and, if symptoms or signs of intestinal obstruction recur, a partial resection of the ileum and right colon including the cæcum will be considered.

Case 2.—A male Hindu, aged 45, was admitted to the hospital on Sept. 18, 1937, complaining of abdominal pain. The patient stated that he was quite well until four weeks before admission, when he began to have epigastric pains about ten minutes after eating food. The pain occurred once or twice on alternate days and persisted for half to one hour. The pain was relieved by drinking fluids. There had been no vomiting, and the patient said that there had been no alteration in his bowel actions or in the consistence of his usual two daily motions. After taking an aperient one day before admission the patient was seized with acute generalised abdominal pain, which was colicky (unlike his previous pain), and he vomited. He also complained of abdominal gurgling. The only illness of note in his past history occurred about nine years ago and necessitated a stay of two months in hospital. The diagnosis was "fever," and his symptoms had "slipped his memory."

The patient looked ill and wasted and was obviously in acute pain. The tongue was furred but moist. The heart and lungs showed no abnormality. The upper abdomen was distended but moved well on respiration. Neither peristalsis nor dilated coils of intestine could be seen. The whole of the right abdomen was very tender and rigid. The hernial orifices were normal, and no tumour was felt. Abdominal auscultation revealed loud rumblings, heard mainly round the umbilicus and upper abdomen. The rectum was not ballooned, and there was tenderness high up of the right rectal wall. No mass was palpated

Operation.—A diagnosis of acute intestinal obstruction was made and the abdomen explored through a right subumbilical paramedian incision. Distended coils of the small bowel presented themselves through the incision and were traced to the last 2 ft. of the ileum, which was found firmly adherent to the peritoneum overlying the sacral promontory. The distended bowel ended abruptly about 6 in. from the ileocæcal valve, where the ileum was almost completely stenosed by a fibrous stricture There was much hypertrophy proximal to the stricture. About 4½ in. of the small intestine, including the stricture, was resected and an end-to-end anastomosis performed. A small mesenteric gland was also removed

The patient had a smooth postoperative course and is now back at underground work. Subsequent radiography of the chest revealed no abnormality.

Morbid anatomy.—The specimen consisted of 4½ in. of the ileum (fig. 2). There was a fibrous stricture 1½ in. from the distal end, the lumen of the bowel being almost completely obliterated at this point. About ½ in distal to the stricture was an oval pigmented area denuded of normal intestinal epithelium, this area being about ½ in. wide and almost encircling the gut. All the layers of the intestine proximal to the stricture were much hypertrophied. The peritoneum was grossly thickened and covered with adhesion.

Microscopical examination of a section through the stricture showed the mucous membrane to be covered by normal columnar epithelium. The submucosa and muscular layers were infiltrated with lymphocytes, plasma cells, endothelial cells, and young fibroblasts No tuberculous giant-cell systems were seen. Section of the removed gland showed normal glandular structure.

This case presents many interesting features The stricture had evidently taken many months to develop, and the short period of symptoms of one month is surprising. To one working in the tropics it soon becomes apparent that the history given by a coolie can be grossly misleading, especially where time is concerned. It was therefore presumed in this case that symptoms were probably present much longer than the alleged one month It was also thought possible that the febrile illness nine years ago might have been the acute stage of some inflammation of the bowel At operation the stricture was thought to be carcinomatous, but subsequent examination of the portion of gut removed showed that it was not. The pigmented oval area was certainly the scar of a healed ulcer; the numerous adhesions and the thickened intestinal wall infiltrated with lymphocytes, plasma cells, and young fibroblasts strongly suggest a chronic inflammation which in healing had produced a fibrous stricture In the absence of frank intestinal tuberculosis the differential diagnosis between tuberculosis of the lower ileum and Crohn's disease may present great difficulty, the macroscopic and histological pictures in the two conditions often showing striking similarity. Facts which pointed to the lesion in the present case having succeeded the ulcerative form of tuberculosis were, first, the presence of a healed, depressed, and sharply demarcated site of old ulceration, and second the well-defined limits of the stricture itself, which could easily be visualised as having followed the "girdle ulcer" described by Boyd (1938) as occurring in intestinal tuberculosis This appearance is in contrast to the more widespread infiltrative change in Crohn's disease, which tends to give rise to "hose-pipe" stenosis.

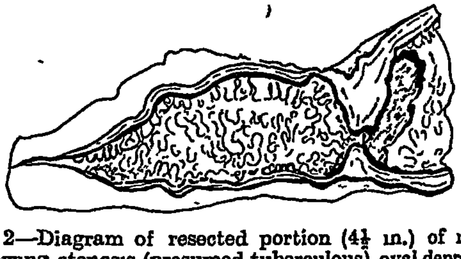

FIG. 2—Diagram of resected portion (4½ in.) of ileum showing stenosis (presumed tuberculous), oval depressed pigmented area (shaded), and hypertrophied intestinal wall

This case is similar to one described by Chi (1934), who stated that up to 1934 only 11 cases of local tuberculosis of the ileum had been reported

SUMMARY

Two cases of stenosis of the small intestine are described, one being a case of hyperplastic tuberculosis of the terminal ileum and the cæcum The second case was presumed to be tuberculous, although the evidence was not conclusive The chief symptom in both cases was abdominal pain, the other symptoms and signs being vague. A barium meal was a most important factor in diagnosis.

We acknowledge our thanks to the managers of the Kolar Gold Fields, Messrs. John Taylor and Sons, 6, Queen Street Place, London, E.C.4, for their permission to publish these cases.

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TREATMENT OF POSTENCEPHALITIC PARKINSONISM WITH BULGARIAN BELLADONNA

By F J Neuwahl, M D Berlin, L R C P E.

In a previous paper (1937) Fenwick and I described two cases of postencephalitic parkinsonism successfully treated with a decoction of Bulgarian belladonna root The present communication summarises the experience we have since gained in treating a further 123 cases at the Law Nursing Home, Rochdale

Lately Hill (1938) described the results of Bulgarian treatment in 14 patients at Maida Vale Hospital He closely followed the instructions that the herbalist Ivan Raeff of Bulgaria sends out with the root and for this reason his results were not as good as they might have been We have found that the large initial dosage that Raeff recommends may cause toxic symptoms serious enough to lead the doctor or the patient to abandon the treatment The mental effects in particular that Hill encountered, such as confusion, hallucinations and delirium, would usually contra indicate the use of Bulgarian belladonna in general practice

PREPARATION AND POTENCY

We have discarded our original technique of preparing the decoction in white wine and now use a method of cold extraction The activity of a solution prepared in this way does not decline after a few weeks as did the wine decoction and it does not produce the disturbing drunken feeling in the morning of which patients often complained As Henricksen (1938) pointed out, the wine decoction varies somewhat in alkaloid content, whereas the content of the cold extraction is precisely known We have slightly modified the process of making a cold extraction as outlined by Antolini (1937)

A watery solution containing 0 75 per cent tartaric acid and 0 1 per cent salicylic acid is used, and 16 grammes of root are added to each 100 c cm of this solution A percolate is obtained after the root has macerated for 80 hours A further quantity of solution equal to the amount of percolate obtained is then added to the root and it is again macerated for 24 hours and the extraction poured off In the interests of economy this process can be repeated a third time The three extractions are mixed and carefully filtered On the average the first extraction contains 0 09–0 1 g, the second 0 06 g and the third 0 02 g of total alkaloids per 100 c cm For use the extraction is made up to a strength of either 0·016 or 0 02 g per 100 c cm by the addition of distilled water

We have investigated the biological activity of an extract of Bulgarian belladonna on the isolated heart of the frog by a fairly simple method used by Trabucchi (1935), and have found it to be nearly twice as great as that of an atropine solution of the same strength. Clinical tests on five patients who were accustomed to take large doses of atropine confirmed these biological experiments, for to obtain the same clinical effect it was only necessary to give half the dosage of Bulgarian extract in terms of atropine content

We have also compared the belladonna root grown in England with that imported from Bulgaria Some difference would be expected because the alkaloid content of the root of Atropa belladonna is known to vary according to such cultural conditions as the nature of the soil, climate, height above sea level, and the time of year in which it is gathered Analysis of various samples show that the average alkaloid content of the English root is slightly less than that of the Bulgarian For instance, in samples analysed in March, 1937, the Bulgarian root had an alkaloid content of 0 46 per cent and the English 0 38 per cent

Clinically we found that in order to produce the same effect the dose of English root must be 10–20 per cent higher than the dose of Bulgarian Otherwise in the 45 patients we treated with English root there was no evidence that its therapeutic activity was less than the Bulgarian The English root appeared to us to be better tolerated so that the dose had not to be adjusted so carefully There were, however, a proportion of patients who did not do so well on the English belladonna, and in six cases we were compelled to return to the Bulgarian belladonna when we were convinced that the patients' complaints of being less active and stiffer were genuine and not due to suggestion We have not used either the powder, the pills or the root No 4 that Dr Hill obtained from Raeff.

CLASSIFICATION OF PATIENTS AND PROGNOSIS

In estimating results we have divided the patients into four groups The *first* group includes patients with extremely serious forms of parkinsonism, and who probably still have a chronic infection, which, to use Perdrau's (1925) words, the local cellular immunity has not completely overcome They exhibit either a progressive state of parkinsonism or acute exacerbations Their general health is poor, and they show a regular rise in temperature at night, a gradual loss of weight, and often a considerable leucocytosis In the *second* group (severe) immunity and infection are more or less balanced resulting in a chronic infection after a short and often obscure attack. The activity of the virus was probably very low and has in time died out The sequelæ are severe and long standing alterations of joints may be found The prognosis of these patients is less hopeful, the pathological alterations in the central nervous system being deep and extensive The *third* group (moderate) includes patients in whom immunity has definitely got the better of the infection, and they are therefore in a comparatively good state of health, though their appearance and bodily attitude are altered and they have to be helped more or less during the day In the *fourth* group (slight) we have included patients who have not been forced to give up their daily routine, though they have not felt able to work They complain mostly of fatigue, with a sense of general ill health and weariness Slight physical signs of parkinsonism are almost always found

The patients of the first group, who are more frequently met with than may be anticipated, are seriously ill and not suitable for any vigorous treatment with alkaloids especially not for the Bulgarian treatment To apply this treatment in high doses may cause a spread of infection All other patients

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are suitable for the Bulgarian treatment A definite prognosis, however, regarding the ultimate results cannot be given The treatment though good is not infallible We found that some of the slightly affected patients did not respond, while others who were still less affected could not tolerate the medicament and showed symptoms of intoxication with the smallest doses, reacting to alkaloids more like normal people.

TOLERATION AND DOSAGE

From a therapeutic point of view the outstanding manifestation of the remodelled organism after an *attack of encephalitis is its toleration for alkaloids,* which is also the most reliable differential diagnostic feature The doses necessary to produce the optimum effect differ widely, and yet the results of the treatment depend entirely on the correct dose for every patient being found We never begin with more than 3 c cm , and patients who have been accustomed to take only small doses of alkaloids before begin with 0 5 or 1 c cm at night The doses are increased by 1–2 c cm every day or every second day, and by this gradual method we have ultimately reached an intake of 80 and even 120 c cm per day without signs of intoxication, apart from blurred vision and a dry mouth It is advisable to decrease the highest doses gradually, until one has found the dose which produces as good results without signs of intoxication. Our maintenance doses have not exceeded 55 c cm. per day, the lowest being 5 c cm per day

Patients who are particularly sensitive, or who have not previously received treatment with the alkaloids of the belladonna group, or have discontinued the treatment for some years, need a much lower dosage than those who are accustomed to take alkaloids continuously The degree of tolerance in these patients is definitely lower, and treatment has to be followed up more carefully than in patients already used to taking alkaloids. In view of this varying degree of tolerance, the treatment is not one which can be lightly entrusted to the patients themselves

ADVANTAGES

Apart from the smaller doses which are usually needed, the action of the Bulgarian treatment is much quicker than that of atropine The change in most of our patients in two to three weeks was so obvious that, though we have become accustomed to this phenomenon, it never failed to give special pleasure A third advantage is that the medicament can be reduced or entirely suspended for several days without any appreciable effect If it is omitted for too long the symptoms of parkinsonism reappear, but they do so very slowly.

The more favourable results of the Bulgarian treatment may be due to three factors. (1) The natural distribution of the alkaloids in the root, which is used in toto. (2) The possible presence of buffer substances (3) The synergism and different actions of the three alkaloids—scopolamine, hyoscyamine, atropine—which are contained in the extract The effect of these factors is especially evident when a virtually normal state is approached Often the maintenance dose, after a period ranging from three to twelve months, had to be reduced by half or even three-quarters, and we came to the conclusion that either the patient's toleration to the medicament decreased the more a normal state of health was approached, or the effects of the medicament accumulated in time. Panegrossi (1935) suggested that patients become accustomed to the toxicity of the drug but not to the normal state of health

REACTIONS AND CONTRA-INDICATIONS

Severe disturbances, even with the highest doses of the medicament, are unknown to us Nursing of all patients is easy except for those who have to be fed, dressed, and washed at the beginning of treatment. It is essential to avoid general disturbances as far as possible I have already mentioned that patients with a chronic infection would certainly fail to obtain any benefit from treatment, and their life might well be endangered if large doses were given Severe reactions disorganise the already weakened state of the body, and the results are not so good while even mild symptoms of intoxication are felt. For this reason much the best results are obtained with a gradual increase in dosage and with a maintenance dose that does not disturb the patient at all

The extract is not so well tolerated on hot summer days, and therefore the doses were decreased at this time of the year Other disturbances are mostly due to the action of the medicament on the alimentary system. Complaints of sickness, vomiting, and diarrhœa occur at times, and are in some cases inevitable They disappear however if the medicine is left off for one or two days and is then given in smaller doses. Lately we have adopted a preparatory treatment, which was the usual routine in several wards of the Edinburgh Royal Infirmary. Every patient who is suffering from constipation or a pronounced degree of meteorism is given rectal washouts and kept for two or three days on a low diet consisting of fruit and vegetable juices Some patients who complain of feeling sick even with small doses of the extract do well on a simple mixture containing hydrochloric acid and pepsin Fractional test-meals of these patients have revealed a hypochlorhydria presumably due to the action of the alkaloids With these measures adaptation to the medicament seems easier, and there are less alimentary disturbances Later the patients are brought back to normal diet

Some contra-indications to the treatment have already been mentioned. Patients who have a very low body-weight are unsuitable, unless they can stay a comparatively long time, so that they can be nursed into better condition It is inadvisable to give the treatment to patients who have severe damage of the myocardium or other circulatory disturbances such as atherosclerosis, hypertrophy of the prostate or disease of the kidney; active tuberculosis of the lungs; cirrhosis of the liver or marked deficiency of the liver function; glaucoma; or severe anæmias

MENTAL DISTURBANCES

The patients who exhibited mental disturbances on admission have been divided into three groups:

(1) Those who lacked initiative, and although they took an interest in their surroundings were incapable of mental work requiring concentration and reflexion They showed indifference and repugnance to mental or physical effort.

(2) Patients who exhibited psychomotor lethargy with akinesis, muscular rigidity, diffuse tremor, and diurnal somnolence. These were quite conscious of their personality but inactive on their own account

(3) Those who exhibited a psychopathological condition, together with symptoms of parkinsonism.

The Bulgarian treatment was most successful in the first two classes of patients The majority of lethargic and sometimes irritable patients changed their mental attitude surprisingly. There was in fact no real mental deterioration. After 4–5 weeks the games of draughts and dominoes for instance changed to chess and bridge, and we could introduce putting, bowling, ball games and physical exercises to increase physical fitness and initiative We have only treated four patients of the third group Three reacted very favourably, one did not react It seems then that it is quite justifiable to submit patients with mental disturbances to the Bulgarian treatment, though it has sometimes to be augmented with other drugs Treatment of highly excitable patients should begin with very small doses, and the increase in dose should be as slow as possible In principle these patients are as a rule included in the list of contra indications, because Bulgarian treatment greatly increases their restlessness We have overcome these difficulties by giving Prominal tablets as a sedative and we have also employed prominal as an adjuvant for those patients who change their mental attitude from minute to minute, and are restless and exhibitory

RESULTS

In assessing results we have adhered to our classification into four groups according to the severity of symptoms We treated 16 of the very seriously affected cases of the first group and though some of them have at first improved, they later relapsed or showed great variation in their condition, while others did not improve at all In these cases a chronic infection was still active We have therefore not included this class of patients in our statistics, because the Bulgarian treatment is not a treatment of epidemic encephalitis but only of its sequelæ The results in the other patients were permanent We have re examined all patients except those who live too far away, and these have reported by letter This was done 3–15 months after their maintenance doses were fixed and they had returned home Our figures are based on these re examinations or reports, so that at least three and usually six months have elapsed since the patients were discharged

Of the 133 patients who were admitted suffering from postencephalitic parkinsonism 5 were discharged owing to a wrong diagnosis, 5 left soon after admission, as they did not appear suitable for the treatment, 2 died of intercurrent disease, and 3 died of a recurrent attack of encephalitis The results in the remaining 118 patients are shown in the table

—	Severe	Moderate	Slight	Total
	Cases and per cent			
Not improved	5 (8·9)	2 (4 3)	2 (12 5)	9 (7 6)
Slightly "	2 (3 6)	—	—	2 (1 8)
Moderately "	26 (23 2)	3 (6 5)	—	29 (24 5)
Greatly "	13 (46 5)	10 (21 8)	4 (25·0)	27 (22 9)
Symptomatic cure	10 (17 8)	31 (67 4)	10 (62 5)	51 (43 2)
Fit for work	12 (21 4)	30 (65 0)	13 (81 25)	55 (46 6)

SUMMARY

Treatment with an extract of Bulgarian belladonna was used in 123 cases of postencephalitic parkinsonism, over a period of 1½ years The results were remarkably good in the majority of cases and no relapse was recorded

The preparation has now been standardised and gave better results in its new form Equally good results can be obtained if the English belladonna root is substituted for the Bulgarian Only in six cases was there a difference in action

Toxic reactions result from the administration of high doses and can be avoided by beginning with small doses and gradually increasing them until the individual's optimum is found

The treatment is contra indicated and useless in cases of chronic encephalitis lethargica

I am indebted to Dr Siewald for his help in keeping these patients under observation, in carrying out the tests, and in preparing this paper.

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Clinical and Laboratory Notes

A TEST FOR VITAMIN-C DEFICIENCY

BY MAX VAUTHEY, M D

AN accurate estimate of vitamin C metabolism can be obtained by determining the "basic ascorburia"—i e, the hourly excretion of ascorbic acid when fasting In practice this is arrived at by estimating the amount of ascorbic acid excreted in the urine during the hour after the first morning micturition and before food is taken In the normal subject this amount is very constant, ranging from 0 92 to 1 04 mg, with an average value of 1 mg, and the degree to which it is raised by the administration of large doses of vitamin C can be used as a test for vitamin deficiency

I have found by experiment that when the basic ascorburia reaches twice its normal value—i e, 2 mg—the subject may be assumed to be saturated with vitamin C, and the amount of ascorbic acid that must be given to attain this figure is a measure of the state of the subject's vitamin storage

An intramuscular injection of 600 mg of ascorbic acid is given each day for three consecutive days at 8 A M In children under ten years the dose is 300 mg daily The subject passes urine at 7 A M, and the urine passed between 7 and 8 A M is collected for estimation of ascorbic acid No food must be taken until after this time In the normal subject the basic ascorburia reaches 2 mg on the morning of the fourth day—i.e, when 1800 mg of ascorbic acid has been given If there was a high degree of saturation before the test began it will not take so long if on the other hand there is a deficiency it will take longer The significance of the results obtained appears to be as follows the amounts of ascorbic acid shown being those required to bring the basic ascorburia up to 2 mg

600 mg (1 day) = very high store of vitamin C
1200 mg (2 days) = high " " "
1800 mg (3 days) = normal " " "
2400 mg (4 days) = slight deficiency of vitamin C
3000 mg (5 days) = moderate " "
3600 mg (6 days) = severe " "
More than 6 days = true avitaminosis

This test has certain advantages over those in general use Thus intramuscular injection of the vitamin eliminates the errors that arise from variations in absorption when it is given by mouth, and it is I think preferable to subcutaneous or intravenous administration after which absorption and excretion may be too massive or too rapid Further only a single sample has to be collected and tested each day; the tests are made on a urine that has been freshly passed, which makes for accuracy; and there is no risk of error due to early or delayed excretion of the test dose because 23 hours have elapsed in each case since the previous injection Finally, no tests have to be made in urines with very low concentrations of vitamin C, which may be difficult to estimate accurately.

Vichy, France

ARTERIAL EMBOLECTOMY

By C Laurence Heanley, F R C S, M R C P.
SURGICAL FIRST ASSISTANT AND SURGICAL REGISTRAR, THE LONDON HOSPITAL

In view of the eight cases of arterial embolism reported by Griffiths (1938) the following two cases in which embolectomy was performed are of interest.

CASE-RECORDS

Case 1, a male aged 18, had been an inpatient six years previously with acute nephritis, chronic rheumatic carditis, and mitral stenosis and incompetence. Since then he had been perfectly well until six months previously, when he had a severe cold followed by bronchitis, which had persisted ever since. Four months ago he had a small hæmoptysis of about half a pint, was treated by rest in bed, and was back at work four weeks later. Since then he had occasional pain in the chest, which kept him off work at times Three weeks ago he felt run down and was ordered to bed by his doctor. Three days ago his doctor started him on digitalis, because his heart was fibrillating.

At 10.25 A.M. on May 9, 1937, the day of admission (6½ hours before operation), he had aching pain in the right loin and two minutes later felt his left toes go numb, and within ten minutes numbness had spread up his left leg to above the knee. He also had pain in his left popliteal space, his left foot felt cold, and he was unable to move his left leg or foot. At the same time some numbness in the right toes was noticed The condition remained constant

When seen at 4 P.M. his general condition was extremely bad. His radial pulse-rate was 130, the pulse being completely irregular. The apex-beat was one inch outside the mid-clavicular line. There was a systolic murmur at the mitral area, and the pulmonary second sound was accentuated. The left leg looked dead and was mottled white. No dilated veins were seen. The leg was stony cold, with stocking anæsthesia up to the level of the patella. There were no active movements of the leg, and passive movements were painful. The right leg was cold, but active movements were present. The knee-jerks were present and equal. The right ankle-jerk was present, but the left was absent. The right and left femoral arteries were felt pulsating. The artery in the left leg had a more definite and more thrusting impulse. (This was observed also in case 2.) The right popliteal artery was felt pulsating but not the left. Oscillometer readings showed an irregular large oscillation in the right thigh and calf. Oscillations were absent in the left calf and middle of the thigh, but with the band very high up some response was elicited in the left thigh.

The diagnosis was made of an embolism lodged in the bifurcation of the left common femoral artery and of a small embolism in the right anterior and/or right posterior tibial artery. The history suggested an embolism riding the aortic bifurcation for a moment or so.

Operation (C. L. H.) at 5 P.M. under local anæsthesia. The left common femoral artery was exposed, and a bulge due to embolism was seen Crile's artery clamps were applied above and below the area of embolism. A longitudinal incision 1 cm. long was made in the blood-vessel over the clot, which bulged through the incision and was removed with forceps The lower clamp was opened, there was almost no reflux flow, and the clamp was closed again. The upper clamp was next opened, and there was no flow; so a probe was introduced into the lumen of the artery, and the embolus was displaced forcibly by a jet of arterial blood. The artery was closed with a fine oiled silk continuous suture.

Immediate postoperative reaction.—The veins filled out and became prominent, the colour of the limb changed, and the leg became warm. Arterial pulsation was felt in the leg, and five hours later the patient could move his toes.

The leg subsequently became swollen and very painful (reactive hyperæmia) but in seven days had returned to normal. There was an amazing improvement in the general condition next day.

May 19, 1937.—There was a sudden onset of pain in both legs at 12 30 P M., more severe in the left than in the right leg. Examination revealed anæsthesia in the left leg to half-way up the calf, and in the right to just above the ankle. Active movements were present but painful. Pavaex intermittent pressure apparatus was applied, but this was too painful to be continued

May 20.—A sudden pain in the right leg at 2 A.M. was followed by anæsthesia and loss of function to the level of the knee. The patient was seen by a physician, who decided that surgical treatment was contra-indicated, and he was treated with morphine. He rapidly went downhill and died the next day.

Post mortem.—The heart showed rheumatic carditis and mitral stenosis. There was ante-mortem clot on the auricular surface of the mitral valve and in the left auricular appendage. The foramen ovale was closed. There was lightly adherent ante-mortem clot in the left profunda femoris and left popliteal arteries. There was no clot and no leak of blood at the line of suture. Ante-mortem clot filled the right superficial femoral and popliteal arteries.

Case 2 was a Jewish male aged 67. The history was extremely difficult to elicit, because the patient did not speak English. Twenty-four hours before admission there was a sudden onset of pain in the right leg.

On examination he was pale but not very shocked His blood-pressure was 160/110. His pulse was completely irregular. Auricular fibrillation was confirmed by electrocardiography. A diastolic murmur was heard at the mitral area, and some moist sounds at the bases of the lungs. There was no œdema of the lumbar region or of the ankles. The left leg was normal, pulsations of the arteries being well felt. The right leg was blue and mottled with venous congestion. The veins, after being emptied, filled up from the distal end. Both knee-jerks were present. The right ankle-jerk was absent, but the left was present. The patient could move his right leg and foot. Analgesia extended to half-way up the right leg. In the right common femoral artery pulsation was felt, but of a similar thrusting type to that of case 1. The right popliteal and posterior tibial arteries were not felt. Oscillometer readings showed normal oscillations in the left leg and thigh, but no oscillation in the right leg, although there was a suspicion of movement of the lever in the right thigh

The diagnosis was made of an embolus lodged at the bifurcation of the right common femoral artery with fairly good anastomosis.

Operation (C. L. H) Oct. 23, 1938, 24 hours after onset, under local anæsthesia. An embolus was removed from the right femoral artery, the technique being similar to that used in case 1, save that the incision was made just below the bulge formed by the clot. The clot adhered strongly to the blood-vessel wall, and there was a fair flow of blood from the distal end of the artery. The artery was slightly atheromatous, and there was some bleeding through the needle holes of the suture Since there was evidence of considerable damage to the intima, and owing to the length of the history Heparin was given, 10,000 units being administered intravenously as soon as the artery had been closed, and the patient was kept on continuous intravenous injection of heparin for 72 hours, receiving in all 55,000 units In spite of this the coagulation-time did not rise above three minutes

After operation the leg did not improve, and although the dorsalis pedis and posterior tibial arteries were felt pulsating the leg remained cold On the third day intermittent venous occlusion apparatus was applied, one hour on and one hour off Pressure on cuff was raised to about 40 cm of water for thirty seconds approximately every two minutes This merely hastened the line of demarcation

Nov 7, 1938—The leg was amputated by Mr W A. Law through the lower end of the femur The femoral artery and vein were thrombosed at the point of amputation Next day the pulse was regular, and electrocardiography showed a normal cardiac rhythm The patient died on Nov 11, and no post-mortem examination was made

CONCLUSIONS

Embolectomy is well worth while, so greatly does it improve the local prognosis in embolism of the lower limbs that it should always be performed in such cases, provided too long a time has not elapsed since the onset of the embolism If more than ten hours have elapsed, the intima is so damaged that thrombosis occurs where the intima is lost Heparin should prevent this (Murray and Best 1938), but in case 2 in spite of the use of heparin thrombosis occurred, possibly because heparin was not given in large enough doses or long enough The general prognosis is poor in relation to the primary disease

In the operation I think it is best to incise the artery wall below the clot, for removal of the clot from the proximal end is easy, the patient's blood-pressure being a help, whereas removal from the distal end is difficult The thrusting impulse of the artery above the point of occlusion can be felt before operation and seen at operation Possibly, in view of work done in the war 1914–18, ligature of the femoral vein might be of service when there is a long history

I am grateful to Dr John Parkinson and Mr Robert Milne for permission to publish case 2 Case 1 was under the care of the late Dr Otto Leyton

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MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTION OF NEUROLOGY

AT a meeting on March 16, with the president, Dr J G GREENFIELD, in the chair, a short paper on

Intraventricular Tumours

was read by Mr GEOFFREY JEFFERSON and Mr HARVEY JACKSON, based upon their study and experience of a series of these tumours Mr Jefferson confined his observations to those arising in the third and lateral ventricles He pointed out that they showed considerable divergences both pathologically and clinically On anatomical grounds alone they were divisible into those which arose from the ependymal lining, from the choroid plexuses and velum interpositum and from certain abutting structures such as the paraphysis, pineal body and embryonic rests derived from the pituitary anlage Again there were tumours which arose from tissues outside the ventricles and which bulged into the ventricular cavities and in respect of which the pathologist's view did not coincide with that of the surgeon He had seen no example of the perfectly localised type of ependymoma, in his experience these tumours constituted a more malignant type which tended to spread over the ventricular floor In describing cases of colloid cyst of the third ventricle he emphasised the importance of distinguishing between the tumour and the adjacent thalamic shadow in ventriculograms These tumours were sometimes impossible to diagnose without the aid of ventriculography because of the absence of localising signs They were apt to be regarded as examples of serous meningitis He described the case of a woman, admitted to a mental hospital with delusional insanity, she was found to have papilledema and further investigation led to the identification of a colloid cyst, and of an unusual example of astrocytoma of of the septum pellucidum in which the tumour caused unilateral hydrocephalus by blocking one of the foramina of Monro In another case, in a young child, epileptiform attacks began after vaccination and were succeeded by vomiting and hemiplegia On radiographic examination a patch of calcification was apparent, but on the wrong side for the hemiplegia Ventriculography disclosed a tumour bulging into the third ventricle which eventually was proved at autopsy to be epiloia Another rare and interesting case was demonstrated in which a meningioma, arising from the tela choroidea in the third ventricle, extended on both sides, into the adjacent parts of the lateral ventricles A difficult problem was presented by a woman with amenorrhœa, central scotoma and bilateral papilledema in whom radiograms showed enlargement of the sella turcica Although a Rathke's pouch tumour was suspected ventriculography demonstrated a mass bulging from the septum pellucidum into both lateral ventricles By splitting the corpus callosum the tumour was exposed and proved to be a gliomatous cyst Since operation the patient had maintained good health

Mr Jackson also emphasised the importance of ventriculography as a diagnostic test in the presence of generalised hydrocephalus without localising signs In illustration of this he described four cases in some detail The first was in a boy of 18 years with a long history of pulmonary tuberculosis, who presented signs and symptoms suggestive of a cerebellar lesion probably a tuberculoma In view of the patient's poor general condition it was thought proper to explore the posterior fossa without a preliminary ventriculogram The exploration was, however, negative, and at necropsy a pedunculated tumour was found attached to the pillars of the fornix and blocking the foramina of Monro Ventriculography would have displayed the lesion and have determined the correct procedure In another case a woman had given a history of epileptiform attacks without localising features, interrupted by a remission of four years' duration Three years before entering hospital her vision had deteriorated and nine months before admission she had been completely blind for one week There had been partial recovery from this and on examination there was a papilledema of low grade and a lower quadrantic defect upon the right. She had suffered from occipital and sub-occipital headaches and from attacks of numbness in the left side of the body Except for writing she appeared to be left-handed There was no aphasia; the right plantar reflex was possibly extensor. Radiographic examination showed depression and displacement to the right of the pineal body, and by ventriculography a filling defect of the left ventricle and displacement to the right of the ventricular system were displayed. An intraventricular meningioma was removed by operation from the hinder part of the left lateral ventricle Mr. Jackson described two other cases and emphasised the significance of an unexplained weakness of the lower limbs He distinguished between the true intraventricular tumours and those which infiltrated the ventricles from without. The former were clinically malignant but pathologically benign.

Dr. **George Riddoch** spoke of the great surgical interest and importance of the intraventricular tumours He criticised the clinical separation of those tumours which lay entirely within the ventricular system from those—for example, tumours arising from remnants of the pituitary anlage—which invaded the system from without. There was a similarity in the clinical picture in that hydrocephalus was an outstanding feature of both kinds He also noted that since local signs were likely to be absent, ventriculography was of importance in establishing the diagnosis Amongst points of diagnostic significance he stressed the occurrence of intermittent hydrocephalic attacks in association with tumours of the posterior fossa as well as with intraventricular tumours Mental deterioration was often an important feature in chronic progressive hydrocephalus, and such deterioration, in the absence of headache, was particularly significant of tumours of the third ventricle He confirmed Mr. Harvey Jackson's view that sudden attacks of weakness of the lower limbs also pointed to this diagnosis, and might indeed be the first symptom. On the whole hypothalamic symptoms were rare. Lethargy and hypersomnia and adiposity should only be interpreted as of hypothalamic origin in the absence of raised intracranial pressure The oculomotor symptoms sometimes observed during hydrocephalic attacks might result from pressure upon the quadrigeminal plate by the distended lateral ventricles

Dr J G **Greenfield** said that unusual histological types of tumour—e g, ganglioneuroma and malignant ependymoma—were often encountered amongst the intraventricular growths.

Deep X-Ray Therapy for Pituitary Tumours

Dr **Alexander Orley**, speaking on the treatment of cerebral tumours by deep X-ray therapy, with special reference to pituitary tumours, said that most of the gliomas were radiosensitive, but the degree of radiosensitivity varied with the histological type in the descending order: medulloblastoma, ependymoma, astrocytoma, and glioblastoma multiforme. The oligodendroglioma was radioresistant. Of the blood-vessel tumours the hæmangioblastomas should be treated by operation and postoperative irradiation while the malformations should receive irradiation alone The meningiomas were radioresistant tumours As to pituitary adenomas their evolution could be divided into three stages: (*a*) endocrine, (*b*) visual, and (*c*) tumoral The endocrine phase should be treated by radiation, the tumoral phase by surgery, and the treatment of the visual phase should be determined by the circumstances. Patients undergoing radiotherapy should be closely watched and surgical intervention undertaken when required The best results followed combined treatment

Dr C. P. **Symonds** thought that Dr Orley had reached some important conclusions without sufficient controls It was necessary to compare the clinical evolution of cases that received no treatment with that of cases treated by deep irradiation. The spontaneous fluctuations that occurred in cases without treatment were often remarkable · thus vision might be suddenly lost and later restored We did not know the underlying causes of such fluctuations, they might be due to the formation and resorption of cysts In the irradiation of gliomas we had perhaps better opportunities for criticism and evaluation of the results. The results obtained in medulloblastomas had been of the greatest value, but he had been unfavourably impressed by the results in other types of glioma

Dr. J **Purdon Martin** thought it unfortunate that so few figures had been collected for the results of irradiation of these tumours in this country. Dr. Orley's figures had been derived largely from abroad In his experience this form of therapy had been successful in treating pituitary adenomata of mixed type, and it was entitled to more extensive trials

Mr. **Jefferson** had found that the cell type underwent little change in irradiation and we were therefore profoundly ignorant of the reasons why some cases responded well to this kind of treatment. He disagreed with Dr Orley's suggestion that irradiation should be directed to pituitary tumours in what he had called the endocrine phase, relegating the tumoral phase to the surgeon In his view the patient who reached the tumoral phase usually died after surgical intervention; the best chance at this stage therefore lay in irradiation As a postoperative line of treatment he supported irradiation wholeheartedly

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SECTION OF THERAPEUTICS AND PHARMACOLOGY

At a meeting on March 14, with the presiden Dr. J. W. **Trevan**, in the chair, a discussion wa held on

Vitamin E

Prof. J. C. **Drummond** summarised the presen position of knowledge about the physiology of the vitamin. The discoverers of the vitamin had shown that it caused a failure of pregnancy in the femal rat and degeneration of the spermatozoa in the testicle of the male rat They had thought the effect on gestation was due to a failure of placenta circulation Recent work suggested a close relationship between vitamin E and the function of the anterior pituitary. Vitamin E did not seem to exer any direct gonadotropic effect but in vitamin-E deficiency the anterior pituitary, particularly in male animals, had an appreciably increased gonadotropic action. The general picture of vitamin-E deficiency suggested a hormone imbalance and this had tentatively been attributed to a dominant action of an œstrin-like factor. Such a hypothesis was in keeping with some of the facts but was not supported by other observations In particular the testicular degeneration characteristic of vitamin-E deficiency differed significantly from that produced by injections of œstrone. So far, said Prof Drummond, no success had been obtained in any attempt to prevent the typical castration-resorption in does or to cure the typical degeneration of spermatogenic tissue in males by the administration of pituitary extracts or hormone preparations He concluded that no simple relationship existed between the anterior pituitary and vitamin E

Mr A L **Bacharach** discussed the difficulties involved in the biological assay of vitamin E He emphasised that though vitamin E seemed to be *essential for normal pregnancy in the rat, deprivation* of the vitamin was without effect on gestation in the goat It was not safe therefore to argue directly from one species to another as far as vitamin-E needs were concerned He had found that 100 per cent gestation resorption occurred in rats fed exclusively from the time of weaning on an E-deficient diet If such animals were given vitamin E in graded doses during pregnancy the percentage of live litters seemed to be a function of the dose employed A rat which owing to deficiency of the vitamin had had one resorption of pregnancy showed greater resistance to the implantation of a further ovum than its virgin sisters and its response to vitamin E therapy was also reduced In testicular degeneration, mildly damaged testes were only repaired when extremely big doses of vitamin E were given, while severely damaged testes did not respond at all

Miss M M O **Barrie** stated that a partial lack of vitamin E was probably worse than a complete lack, since it resulted in pathological pregnancies while a complete lack led only to a failed pregnancy Partial deficiency might have three results (1) a toxæmia of pregnancy, (2) prolonged gestation, (3) production of E deficient milk Miss Barrie said that rats fed on an E deficient diet and then given vitamin E after mating developed muscular dystrophy and bleeding from nose and rectum At autopsy gross lesions were found in both liver and kidney, associated with pigmentation of the uterus When the deficiency was mild the rats might deliver a normal litter, but about 18 days after birth the young began to show signs of E deficiency This deficiency she attributed to lack of the vitamin in the mothers' milk because if the young were raised by a normal foster-mother they remained well, while the litter of a normal mother suckled by an E deficient rat developed signs of E deficiency In Miss Barrie's view the close similarity in appearance of the hypophysectomised rat and the E deficient rat suggested a close relationship between the vitamin and the anterior lobe of the pituitary She hoped that vitamin E therapy might prove to be of clinical value in women subject to habitual abortion and in those with toxæmia of pregnancy or deficient lactation

Prof F J **Browne** said that published reports suggested that treatment by vitamin E of habitual abortion in women resulted in the birth of a living child at term in 75 per cent of cases He himself was unconvinced by such results, since equally satisfactory findings were reported from the use of extremely varied therapy—for instance, progesterone, vitamin C, weekly injections of small amounts of serum from pregnant women, and cold baths He described 18 cases of habitual abortion which had been treated at University College Hospital, 8 cases were given progestin, 3 vitamin E and 7 good advice, 2 of the latter being admitted to hospital The 7 control cases all had living healthy children at term Prof Browne urged the need of greater caution in interpreting the results of vitamin E therapy in women in the absence of adequate controls

Mr F **Bergel**, Ph D, emphasised the importance of using stable preparations of vitamin E for clinical trial

Prof **Drummond**, in reply, said that Prof Browne's findings suggested that in humans the process of normal pregnancy, like that in the goat and unlike that in the rat, may not be dependent upon vitamin E He reminded the meeting that the diet of the poorer people in this country is extremely deficient in vitamin E

HUNTERIAN SOCIETY

At a meeting of this society on March 20, with Mr A C **McAllister**, the president, in the chair, a discussion on

Misleading Leading Symptoms

was opened by Lord **Horder** He said that the predominant misleading leading symptom was pain A symptom might be local but the disease which produced it general A local symptom of typhoid might be an intense neuralgia relating to some division of the fifth nerve and suggesting an acute sinusitis In poliomyelitis retention of urine and pain in the back might be the presenting symptoms A symptom that had several times threatened to distract his attention from the true position was the "cardiac shock" which replaced the rigor in certain acute diseases Pneumonia, especially in elderly people, might start without shivering, and the physician might *not think of taking the temperature*, or the temperature might be equivocal The picture was like that of a cardiac attack, with cyanosis, a poor pulse, and the features of an acute ventricular insufficiency Conversely, a local disease process might produce general disease symptoms In an adult a small patch of erysipelas or of streptococcal dermatitis, or an early cellulitis with slight lymphangitis, might be present in a patient who was brought to the physician for headache, delirium and high fever with a request to perform lumbar puncture The symptoms were not due to meningitis but to the other focus of infection The practitioner was sometimes misled by severe anginal or lower sternal pain in gall bladder disease The patient might, however, be suffering from both diseases Anginal symptoms might indicate diaphragmatic pleurisy Some patients with a duodenal ulcer presented all the classical symptoms and the diagnosis was confirmed by radiology or surgery, although the pain and tenderness were left sided

Functional disorders, Lord Horder went on, sometimes simulated organic trouble Migraine with hemianopia, aphasia, anæsthesia, paresis, and ophthalmoplegia might occur in a patient suspected of organic disease In a patient with hyperpiesis and a certain amount of arteriosclerosis who was not yet old enough to have emerged from the migrainous state the symptoms were very misleading Many cases of strabismus and some of diplopia were merely due to excessive fatigue, although these symptoms might linger for some time A patient might have very intense headache with slight mental confusion, slight pyrexia, and a stiffness of the neck suggesting mild meningitis, after a long and exacting motor drive under bad conditions Such patients sometimes had a suspicion of disseminated sclerosis attached to them for years on that evidence alone The angioneurotic patient might be suspected of organic disease, and it was the fashion now to look for an underlying inflammatory trouble Epilepsy might be missed in a patient who complained of flatulence and attributed "nerve storms" to it in other words, the aura of epilepsy was a misleading symptom Very many anginoid patients said that their pain disappeared when they got rid of wind; this association was synchronous rather than causal. The crises of tabes were apt to be misleading. Some hæmaturias did not connote stone, neoplasm or a renal lesion. The patient with chronic interstitial nephritis who was getting on in years and had been taking hexamine for rather longer than was advisable might sometimes show hæmaturia, and it was not always realised that hæmaturia was quite common in acute pyelitis. Anuria when the patient was vomiting or suffering from diarrhœa might be misleading, and so might the pain which preceded the rash in herpes. Lord Horder still saw, he said, the shiny red foot or hand of acute gout with incisions in it, which did not heal well even on the Prontosil which some physicians tried. Epileptiform attacks might occur in hard drinkers, and true epilepsy might begin late in life without syphilis. The enlargement or ptosis of an organ, such as the spleen or liver, might cause puzzling symptoms.

Mr. W. H. Ogilvie declared that misleading symptoms could only be misleading to one who was able to be misled. "Leading" conveyed the idea of motion, and surgeons were more likely to be misled than physicians because they were more likely to do something. A policy of masterly inactivity was an absolute safeguard against "misduction." Pain could not be analysed and was capable of limitless misinterpretation by the patient and the practitioner. Its real severity might bear little relation to the patient's account of it, and depended on the age, sex, courage and general background of the patient. Each physician must construct his own scale of values from his personal experience. The most severe pain was that of perforated duodenal ulcer, closely followed by that of coronary disease, which might mimic a surgical emergency. Next came gall-stone colic, slightly behind it renal colic, and then acute pancreatitis; much later came the pain of appendicitis and intestinal colic. A good malingerer could describe and mimic the pain of perforation, and spurious or imaginary pains were more likely to mislead when they were associated with a real organic lesion.

The practitioner must decide not only what disease the patient had but what he was suffering from. An expensive medical education rather predisposed to mistakes, and clinical experience was the only safeguard. The specialist would detect the slightest abnormality in the organ or system of his own particular study, but could swallow a whole camel of coincident general disturbances. The vomiting, distension and constipation typical of colonic carcinoma were often seen with uræmia. The vomiting of large quantities of blood, usually an indication of organic disease, was frequently practised by hysterics and malingerers. He had been led astray by pigmentation that was not due to residual jaundice but to Asiatic extraction. Symptoms should not lead the physician, but came to him to be put in their proper place. When they had been marshalled and assessed the physician would often find that the most noisy symptom was not necessarily the leader. The medical profession would be very foolish to abandon the system of clinical training which prevailed in this country and which had been founded by Sydenham and Boerhaave. Mr. Ogilvie said he had suffered throughout his life from a complete ignorance of psychology. Students should be taught the working of the normal mind as part of their ordinary physiological training, and should later be given enough psychological instruction to show them how the normal mind reacted to the stress of circumstance and modified the signs and symptoms of disease.

DISCUSSION

Dr. F. M. R. Walshe said that there were no misleading symptoms, only symptoms that the doctor failed to interpret. One reason for such failure might be the natural tendency to accept a patient's description as bearing some relation to reality. The "headache" and "giddiness" most often described to the neurologist should be taken to mean nothing at all until the exact meaning that the patient attached to those words had been elicited. Giddiness might mean unsteadiness due to tabes or rotary vertigo from labyrinthine disease, or might merely be a figure of speech in a psychoneurotic. Out of ten neurological patients complaining of headache, there might not be two with the same physical basis for it. Interpretation could only be reliably made after observation of the entire constellation of symptoms. If clinical medicine could only be learned at the bedside, he asked, how could psychology, a much more complex subject, be taught to an adolescent medical student out of books? The understanding of the minds of one's fellow-men could only be gained in the battle of life. To add more precise psychological study to the medical curriculum would be a completely futile last straw on the back of the wretched camel.

Dr. George Riddoch spoke of the difficulty of estimating the patient's normality, capabilities and intelligence in a comparatively brief interview. The physician might also be misled by statements of relatives and friends. Especially dangerous were symptoms on the borderline between physical and psychological interpretation. In a case of head injury symptoms which appeared to be psychoneurotic—e.g., pain and discomfort in the head—were sometimes laid aside in that category and proved later to have an organic basis. Defects of memory and difficulty in concentration might be the result of disturbances which would lead in time to permanent disability. Pain might be absent in a neurological condition where it should be present, such as cerebral tumour; and elation or depression with delusions might be absent in an early general paralytic. General paralysis might develop insidiously under the appearance of neurasthenia.

Mr. L. E. C. Norbury spoke of a patient whose baffling symptoms of pain had been produced by a series of misguided operations. Some patients could produce symptoms at will—e.g., those of dislocated ankle—and capitalised them round the hospitals.

Mr. C. P. G. Wakeley gave a warning against failure to put to the patient questions which appeared irrelevant. A diagnosis was sometimes missed because of a negative report from the radiologist. Diagnosis tended to be made in a department rather than on clinical evidence, and there was today a lack of clinical observation.

Mr. W. D. Doherty complained of the tendency to send patients to a specialist because the leading symptom seemed to fall within his specialty, when the real condition was not one for that specialist at all. Many infant boys were circumcised because they appeared to cry whenever they passed water. In his opinion these children often only passed water as a mechanical result of screaming due to some other cause of pain.

Dr. F. Howard Humphris told how he had once mistaken a diabetic coma for alcoholic stupor, and deduced from the experience the precept always to test the urine.

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Dr **Alastair McGregor** mentioned a case in which a tapeworm had caused glycosuria on which diabetes had been diagnosed

Mr **H L Attwater** recalled the case of a woman in whom a subacute congestion of the bladder leading to the single symptom of frequency had been due to a local smouldering inflammation of the right fallopian tube

Mr **A E Mortimer Woolf** thought that the semi fraudulent patient was more baffling than the malingerer, and instanced a girl who had repeatedly appeared with pins in the intestinal tract The most misleading symptoms were common symptoms that had unusual bearing Hæmaturia might be caused in children by eating peardrops, which were flavoured by certain acetanilides

Dr **G L Attwater** spoke of a mysterious pyrexia in a nurse whose integrity was undoubted , she had a bowed shoulder and a hunched back and complained of pain on the right side, but there was no tenderness or tumour and the urine was normal

Dr **F A Richards** discussed the vagaries of amenorrhœa, and mentioned that pregnancy might be overlooked in an obese patient

Mr **A. Dickson Wright** drew attention to the danger of regarding as fraudulent or neurotic patients who really had an organic disease, and gave as an example a case of malignant disease dismissed as pseudocyesis Lesions in the feet or hands of patients suffering from arterial disease were sometimes mistaken for whitlows and incised

Dr **W H F Oxley**, proposing a vote of thanks to the openers, said that more careful search for physical signs would prevent some mistakes —Mr **D C Norris**, seconding the motion, stressed the value of taking an all round view of patients, and gave an example of confusion between symptoms of appendicitis and of pneumonia

REVIEWS AND NOTICES OF BOOKS

The Social Function of Science

By J D **Bernal**, F R S , professor of physics in the University of London, at Birkbeck College, London George Routledge and Sons 1939 Pp 482 12*s* 6*d*

In this fully documented and closely written treatise, supplemented with notes and appendices, Prof Bernal surveys science in the past, present and future The frustrated scientist speaks his mind, and to those who complacently think and speak of scientific progress as one of the outstanding merits of the age his representations will be something of a shock In his view the teaching of science at school is deplorable "physics and chemistry, as required for university entrance examinations or school certificate, has been worked into one of the most repulsive routines imaginable" Their curricula contain nothing concerning twentieth century discoveries At the university things are hardly better and the lecture system in particular is condemned The conditions and character of research work done in university, government and industrial departments is examined at length and its parsimonious backing, lack of coördination and often desultory character are frankly exposed It certainly reflects poorly on the present state of our civilisation that the annual grant to the Medical Research Council is only £195,000 (1938) in comparison with £204,000 for the Chemical Warfare (Defence) Department Nor is it encouraging to find that we lag behind other and poorer countries in our expenditure on research Bernal concludes that relative to its wealth and importance in world affairs, England spends very little on science and makes less of its potential scientists than do any of the other great powers This and other equally formidable charges are supported by facts and figures

In view of our fine tradition and opportunities the time has clearly come when we should review the situation and decide upon our future policy And here there is little doubt that those who like to keep science and politics in watertight compartments will jib at many of the suggested remedies Fundamentally the reform must come through improved education combined with greater support from the state Such education should cater also for the man in the street who with better and fuller newspaper reports and popular expositions of scientific matters, perhaps including televised experiments, would take a greater interest in science and appreciate more fully and intelligently the part it plays in his daily life In short a real understanding of science should become a part of the common life of our times

Bernal makes many practical suggestions for the more effective running of laboratories and the recruiting and training of workers in all lines of research, and he emphasises the desirability of forming a greater number of institutes where specified lines of research may be pursued by teams of suitably qualified workers The function of scientific periodicals is also examined and the view expressed that we are within measurable distance of suffocation by the volume of matter published—an event only to be avoided by abolition of nearly all existing journals and rationalisation of scientific intercommunication The pursuit of science along Bernal's lines might well create a world both brave and new, and his utopia has an appearance of practicability as well as an absence of priggishness Any prospect of immediate achievement is however seriously handicapped by the present epidemic of nationalism which, in more ways than one, threatens a severe setback to scientific progress

This review mentions only a few of many interesting sections of this book, and all who have the welfare of civilisation at heart are advised to give it their serious and unprejudiced consideration

Ker's Manual of Fevers

(4th ed) Revised by **Frank L Ker**, M B Edin , senior assistant and deputy medical superintendent, Little Bromwich Hospital, Birmingham London Humphrey Milford, Oxford University Press 1939 Pp 351 12*s* 6*d*

The preparation of the fourth edition of the late Claude Ker's Manual of Fevers has been undertaken by his son, Dr Frank L Ker Eleven years have passed since the last edition, edited by Dr Claude Rundle, appeared and Dr Ker says that while the greater part of the text remains unaltered advances in the bacteriology and treatment of the infectious diseases have necessitated considerable revisions and additions to these sections Claude Ker's clinical descriptions of the common fevers are among the best we know and it is well that in the main they have been left untouched Unfortunately however the reviser, in a laudable attempt to preserve as much as possible of his distinguished father's work, has retained a good deal that is obsolete and has omitted much new work The Paschen bodies, now recognised as the virus of smallpox and vaccinia and the analogous elementary bodies to be found in the vesicles of chickenpox, are not mentioned. The arguments against the connexion between chickenpox and herpes zoster are enumerated, but nothing is said of the almost conclusive evidence that has accumulated in favour of an identical virus Vaccination by scarification, here described, has been officially deprecated for ten years; indeed the whole section on vaccination requires rewriting There is nothing about postvaccinal encephalitis or, for that matter, about measles encephalitis. Few will agree with the advice to regard 24,000 units of antitoxin as the maximum single dose to be reserved for the serious case of diphtheria; nor is the aggregation of unitage by daily doses in accord with most modern teaching The subcutaneous route of injection has long been discarded by fever-hospital clinicians. We find no reference to accessory glucose therapy, which is generally employed in fever hospitals for the toxic case of diphtheria Weekly injections of diphtheria prophylactics are not now recommended; wider spacing of the doses is almost universal The Moloney test for sensitivity to toxoid might have been included with advantage. If we appear to emphasise the defects of the section on diphtheria it is because we share the anxiety felt by all those concerned with public health in this country that prophylactic measures against this preventable disease should be encouraged and that meanwhile the knowledge gained about its treatment should be widely disseminated.

In spite of these criticisms of points of detail, Ker's Manual of Fevers maintains its position as one of the best of the smaller books for students The format and type are pleasing. The text is illustrated by clear charts, but the photographic reproductions of the exanthemata, as is usually the case, are only moderately instructive We wish the book, under its new editor, the popularity it has always enjoyed.

Clinical Laboratory Methods and Diagnosis

(2nd ed) By R. B. H. GRADWOHL, M.D., director of the Gradwohl Laboratories, St. Louis. London: Henry Kimpton. 1938 Pp. 1607. 50*s*.

THIS big volume covers every examination likely to be required in a laboratory or a clinic, whether it is a matter of bacteriology, serology, hæmatology, or biochemistry. On the whole the work is well done, the descriptions being clear and accurate, but obviously such a wide ground could not be covered by a single person and the author must have drawn on the experience of others. This is apparent in the text, which in many places has a curious impersonal tone Thus in the section on the stomach the description of the test-meals is accurate but reads rather like an extract from a railway timetable. Two different ghosts must have written this section without consulting each other, for on p. 582 ghost No 1 writes that in carcinoma of the stomach there is no free hydrochloric acid at any time, whereas on the next page ghost No 2 remarks that in the same condition free hydrochloric acid is present in amounts varying from low to abnormally high values in practically 50 per cent of cases Such things tend to shake the confidence of the critical reader It may be that this omnibus type of volume is less satisfactory than a series of books written by men who are working at the various benches.

St. Thomas's Hospital Reports

(Second series, vol 3) Edited by Prof. O. L. V. S. DE WESSELOW and C. MAX PAGE, F.R C.S London: St. Thomas's Hospital 1938. Pp. 240. 10*s*

SINCE the St Thomas's Hospital Reports were reconstructed three years ago, they have contained a large number of original papers, many of considerable value. The present volume maintains and even improves upon the high standard previously set The range of the contents is very wide—from psychiatry to ophthalmology, from physiology to venereal diseases—but the bulk of the papers deal with problems of internal medicine. Prof. de Wesselow and W. A. R. Thomson find that in Addison's disease a fall in serum sodium has a closer correlation with symptoms than a rise in serum potassium They also record œdema following overdosage with sodium chloride, and they have obtained good results from a low-potassium diet combined with sodium chloride and citrate W I. Card reviews fully the question of gastritis from the functional, histological, clinical and *gastroscopical aspects; he makes a good case for the* inclusion of gastritis among our common medical diagnoses Buzzard, Richardson and Turner review the progress of 116 cases of ulcerative colitis. They find psychological make-up an important factor in prognosis Simple medical treatment appears to give the best results, but when it fails, a transverse colostomy is often of great value. D. P. King provides evidence that the Gordon test for lymphadenoma depends not on a virus but on the number of eosinophil cells in the inoculated material Leucocyte creams rich in eosinophils from non-lymphadenomatous sources give uniformly positive results Bourdillon, Cargill, Cosh and Miles confirm the common occurrence of a mild normocytic anæmia in pregnancy. Jones and Taylor find vitamin preparations of no curative or prophylactic value in acute rheumatism W H. de B Hubert reviews the scope of the new psychiatric children's clinic at St. Thomas's, and stresses the value of juvenile treatment and prophylaxis, in contradistinction to the bad outlook in much adult neurotic material.

On the surgical side, the outstanding paper is a review by N. R. Barrett of putrid lung abscess The importance of recent anatomical work, especially on the bronchopulmonary segments, is emphasised. Unfortunately, although nearly forty authors are mentioned in the text of this article, there is no bibliography. The bibliographies of most of the other articles are excellent R H O B Robinson writes on ureteric calculus, G Perkins on ununited fractures, P. G Doyne on lacrimal obstruction, and H Ridley on treatment of the detached retina These four articles are honest textbook stuff, of great value to those who need to refresh their memories Fergusson and Durbin survey the results of the treatment of 146 cases of fractured patella; their conclusions differ little from previous findings Among other articles may be mentioned the late Prof Dudgeon's complete story of an early X-ray carcinoma, Prof B A. McSwiney's account of afferent fibres from the abdominal viscera, and J. Wyatt's discussion of the hæmolytic streptococcus in relation to puerperal sepsis The volume closes with 22 abstracts and a complete list of recent papers by St Thomas's men The paper, printing and binding are excellent

At times one wonders precisely for whom hospital reports are intended Their breadth of scope and limited circulation make them unsuitable for rigid specialist studies Yet the present volume of the St Thomas's reports contains some excellent original work Its authors were prepared to lose a little glory in order to tell the world what St. Thomas's is doing Reports are in fact an index of the quality and quantity *of work and thought going on in* their parent hospital In addition, they should form an intellectual link between the hospital and its scattered flock Judged by both these criteria, volume 3 of the new St. Thomas's Hospital Reports must be regarded as a success.

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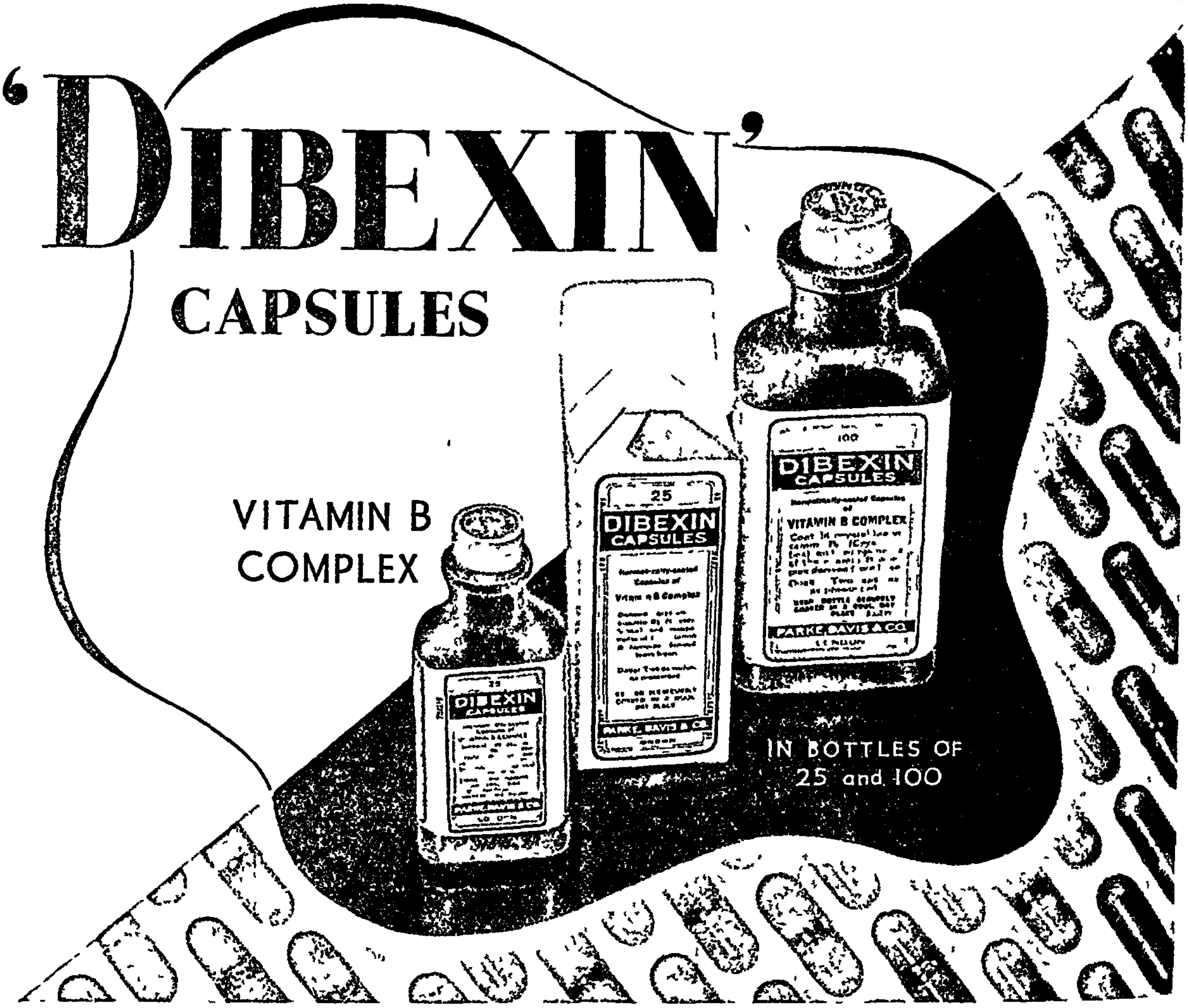

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THE LANCET

LONDON SATURDAY, MARCH 25, 1939

STATE AID FOR CANCER RESEARCH

THE peers taking part in the debate on the second reading of the Cancer Bill in the House of Lords, which centred on an amendment moved by Lord BALFOUR OF BURLEIGH regretting that no provision was made for increased research, showed an encouraging appreciation of separate issues—the need for more general application of current knowledge and the need for adding to that knowledge. The bill is concerned entirely with the first of these, except in so far as clinical records and their statistical analysis will provide guidance in the choice between methods of treatment. The chief remediable defect in our present system, or lack of system, of combating cancer, in the light of existing knowledge, is delay—in seeking diagnosis, in making diagnosis and in securing prompt treatment. It is hoped to eliminate or at least to reduce this dangerous waste of time at each stage by the establishment of over 300 local consultation centres and some dozen new treatment centres in areas now without them. About 1000 additional beds will be needed and these are to be attached to existing hospitals in order to avoid the stigma which might adhere to special "cancer" clinics.

The modern unit for treating cancer consists of a team of skilled workers who collaborate in the study of each case and decide which of the available methods—surgery, X rays and radium—or what combination of methods should be used. As Lord DAWSON pointed out, there is no difficulty in finding good surgeons but there is a dearth of skilled radiotherapists, and the number of men seeking training and experience is much too small to meet the future demand. The risk of taking up this specialised work is that radiotherapy may be replaced by some other form of treatment for malignant disease, but there is probably enough evidence that it is in an actively developing rather than a regressing phase to overcome this objection. A much more potent deterrent is the lack of good prospects now, when the posts advertised offer adequate remuneration and a hospital status equal to that of other members of the team there will be no shortage of candidates. The position of the radiotherapist must be assured if he is to exert a proper influence on the decisions made, surgeons have long been used to undivided responsibility for the treatment of cancer and are not always easily persuaded to change their practice in deference to his views. The ideal team should consist, as Lord DONOUGHMORE said in describing the organisation already established in some centres, of "equals all equally concerned."

None of the clauses of the bill were criticised and there was a general desire that it should speedily become law. But while all the speakers loyally entered into the spirit of optimism that the bill is designed to engender, and emphasised successes rather than failures in treatment, there was obvious concern lest a too complacent attitude had been adopted. Lord BALFOUR OF BURLEIGH made an eloquent plea for state subsidy of research—"an investment which may result in great economy"—and this was warmly supported by every speaker who followed him. The balance between knowledge and ignorance of cancer is still so overwhelmingly on the debit side that the expenditure of some £700,000 a year (more than three times the total amount of the annual grant to the Medical Research Council) on diagnosis and treatment without any corresponding allocation for research could hardly escape criticism. Broadly speaking, we do not know enough about the causation of cancer to be able to prevent it, and if more than half the "early" cases of cancer in accessible sites presenting themselves at a centre are alive 5 years afterwards we regard this as a creditable achievement. Lord BALFOUR OF BURLEIGH did not detail the type of research unit that the Medical Research Council, over which he presides, have in mind, but he estimated the cost at something like £30,000 a year for 10 or 15 years, and he hinted that besides fundamental research into causation the council might undertake the study of new methods of treatment, including neutrons. The gist of the message conveyed by the debate was that while applying what we know we must redouble attempts to learn more, and that the state should support both these efforts. In the end Lord STANHOPE, while unable to commit the Government, said how greatly he had been impressed by the support which the amendment had received from every quarter of the House, and undertook to convey to the Chancellor of the Exchequer the desire that further provision for research should be made. In view of this undertaking the amendment was withdrawn, and the bill was read a second time.

The tone and outcome of this debate, which was maintained throughout at a high level, will bring satisfaction to those interested in medical and indeed in all branches of applied science. It indicates a surprisingly wide acceptance by our legislators of the view, held by all scientific workers, that success in administrative action directed towards problems of health is not primarily determined by the size of the organisation or of the money available, but by greater knowledge of the disease to be combated and of the weapons in the service of the doctors.

M & B 693 IN THE U.S.A.

EVERYONE concerned with the treatment of pneumonia has awaited with interest the impact of M & B 693 on therapeutic practice in the United States. Pneumonia has for many years been investigated more thoroughly and on a larger scale in that country than anywhere else, and until last year almost every advance in its study and treatment has been due to the efforts of American workers Their most notable achievement has been the progressive perfection of serum treatment, and the sudden advent of a chemotherapeutic alternative creates a situation for which there is certainly no exact parallel in the annals of specific therapy.

The first records of American opinion and experience of this drug are now appearing in print, and they contrast strangely with what has been written about it in this country. We referred on March 4 to E K MARSHALL's report on its absorption and toxicity, and his scathing remarks on the inadequacy of its pharmacological study. An even more downright protest in more general terms has now appeared under the formidable names of BULLOWA, PLUMMER and MAXWELL FINLAND.[1] They think that the clinical reports hitherto published are "grossly inadequate for any evaluation," they deplore the indiscriminate use of the drug—which is apparently receiving much publicity in the lay press and by radio—and they conclude by urging that serum treatment should be used as before, "until those in a position to undertake carefully controlled observations have had an opportunity to ascertain the value of this drug and its limitations, and are prepared to present properly documented results in significant numbers of cases." This is the attitude taken by Dr THOMAS ANDERSON in our correspondence columns on Feb 25, and if anything in the editorial article he then criticised had belittled the need for the more intensive and critical study which is now in progress in the U S A , we should have to admit that his protest was justified

The same note of reserve and caution, which many workers here will think unnecessarily discouraging, pervades a report of the council on pharmacy and chemistry of the American Medical Association,[2] which has now adopted the name "sulfapyridine" as a non-proprietary name for the remedy. (It will be remembered that this council proposed the name "sulphanilamide" for *p*-aminobenzenesulphonamide and that this country at once accepted it; but "sulfapyridine" does not seem quite so happily descriptive a choice, nor is there a need for it such as was created by the enormous diversity of proprietary names invented for sulphanilamide.) The report itself is written by PERRIN H LONG and he records observations of his own as well as adjudicating on those of others He has confirmed the efficacy of the drug in experimental streptococcal, pneumococcal, staphylococcal and meningococcal infections in mice, and adds that it is also effective against Friedlander's bacillus and *Clostridium welchii* He refers to MARSHALL's work on its incomplete absorption, and he has himself noted that it is "irregularly absorbed in man and animals and in comparison with sulfanilamide is also more slowly and definitely less well absorbed." In discussing the treatment of pneumonia, the only conclusion reached is that until further evidence has been obtained, the use of serum should not be abandoned One minor but interesting point is that the alleged immunity to reinfection of mice infected with pneumococci and successfully treated with the drug is denied This finding is perhaps consonant with the now familiar clinical observation that, unless the treatment is continued for a week, pneumonia is apt to recur From these and other considerations it is concluded that the general use of the drug is not yet warranted, and that it should only be employed by those in a position critically to evaluate it.

As a set-off to these somewhat severe pronouncements, the same journal contains two clinical reports which, though guarded, are generally favourable. BARNETT and his colleagues[3] describe the treatment of 14 cases of pneumonia and 9 of miscellaneous conditions, all in children, they made numerous estimations of the concentration of the drug in the blood, and found that this could be maintained by giving a 2 per cent. solution of its sodium salt per rectum, a proceeding which may obviate the nausea and vomiting often produced FLIPPIN and his associates[4] treated 100 cases of pneumonia with only 4 deaths, 3 of which were in type III infections , of 8 patients shown to have bacteræmia only 1 died. They also estimated the concentration of the drug in the blood, and found exceedingly wide variations, evidently due to varying rates of absorption. Contrary to expectation, the therapeutic effect was as good in patients with a blood concentration of under 3 mg per 100 c cm as in those in whom it lay between 10 and 18 mg. This is quite at variance with what would be expected by analogy with sulphanilamide treatment, and whatever the explanation of this observation it illustrates the need for the further controlled study on which American authors are now insisting. The facilities for this study, especially in connexion with pneumonia, are immensely superior in the United States to any that exist here; and just as their results with serum have been far more significant than any obtained elsewhere so no doubt in time will those of their trials of M & B 693 American criticism of the investigations so far reported in this country seems to us excessive , but all will agree that much remains to be done in studying the action of the drug, and we can only be glad that the vast organisations and unrivalled experience available in the United States should now be taking this task in hand.

FIFTY YEARS .OF LONDON GOVERNMENT

THE jubilee of the London County Council is worthily commemorated by the publication of a history,[5] written at the instance of the council by SIR GWILYM GIBBON and MR. REGINALD W BELL, of what our greatest local-government authority has done in the 50 eventful years that have gone by since Lord ROSEBERY presided over its first meeting on March 21, 1889. The authors provide a penetrating analysis of the difficulties and complexities of local administration and of the important tendencies of its modern development in England. One is the gradual merging of ad hoc bodies in a central directly elected authority. When the London County Council was constituted, the school board was the local authority in London for elementary education, hospitals for infectious diseases were provided by the Metropolitan Asylums Board, and public assistance was administered by the boards of guardians. By a series of statutes passed between 1903 and 1929 these bodies were abolished and their powers and duties *transferred to the London County Council*. These administrative changes, and further developments initiated by additional legislation, greatly increased the diversity of the functions fulfilled by the council. As the successor of the Metropolitan Board of Works—a body now remembered chiefly for the malpractices of a few of its members and officers, and not for the benefits it conferred upon Londoners by its street clearances, its provision of the Victoria, Albert, and Chelsea embankments, and other manifest improvements—the council was at first concerned only with environmental conditions, such as main drainage, highways, and building control. Now it administers important personal services: education, hospitals, mental services, the treatment of venereal diseases and tuberculosis, the welfare of the blind, midwifery services, and public assistance, including the medical care, institutional and domiciliary, of the indigent. The administration of these services now accounts for more than 70 per cent. of the council's total expenditure.

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[1] Bullowa, J G M , Plummer, N , and Finland, M , *J Amer med Ass* Feb 11, 1939, p 570

[2] *Ibid*, p 538

[3] Barnett, H L , Hartmann, A F , Perley, A. M , and Rubez, A B , *Ibid*, p 518

[4] Flippin, H F , Lockwood, J S , Pepper, D S , and Schwartz, L , *Ibid*, p 529

[5] History of the London County Council, 1889–1939 By Sir Gwilym Gibbon, C B , C B E , D Sc , and Reginald W. Bell, LL M , Barrister-at-Law London : Macmillan and Co Pp 696 21*s*

These wide extensions of function have necessitated corresponding increases of personnel. The total staff employed by the council, which in 1891 was 3700, is now nearly 78,000. Of these, 18,400 are matrons or nurses, 18,300 are teachers, 13,600 are domestic staff, 11,200 are engaged in administrative, clerical or supervisory duties, and about the same number in engineering, operative, or repair work. The control of this enormous body of workers involves formidable problems of recruitment, promotion, management and discipline; in dealing with these the council has evolved methods which, as the results of long practical experience, have achieved remarkable success.

The increase in the council's provision of medical services is chiefly due to the assumption, under the Education Act of 1903, of its duties as London's education authority, and the transfer to it, under the Local Government Act, 1929, of the functions previously fulfilled by the boards of guardians. The council was one of the first of our education authorities to bring the doctor into the school. Under the guidance of its first school medical officer, Dr. JAMES KERR, the foremost British pioneer in school hygiene, the medical inspection of school children was begun in London in 1905, two years before it became compulsory for the whole country. Great hygienic improvements were effected in the construction and ordering of school premises, in educational methods, and in the condition of the children, and special provision was made for children who physically or mentally are not up to normal standards. Medical treatment was provided on a rapidly increasing scale. There are now 81 treatment centres at which annually 140,000 children receive dental treatment, 13,500 treatment for ear, nose, and throat complaints, and 125,000 treatment for minor ailments. Every year 25,000 prescriptions for spectacles are issued. In this work 206 doctors give part-time service. Only those who were familiar with elementary schools at the beginning of the century can appreciate the vast changes that have since been made. An even greater *extension of the council's functions in providing* medical services was brought about by the Local Government Act, 1929, which transferred the powers and duties of the many London authorities administering the poor-law to the council. The separation of the care of the sick from that of the able-bodied inmates of institutions was a formidable task. No sudden or drastic changes were made, but the intention to provide first-class hospital treatment for the sick has been carried out methodically and with brilliant success. Since April, 1938, all the council's hospitals—acute, chronic and special—have been administered under its public-health powers. Three million pounds have been spent on hospital improvements during the last 10 years. There are now some 35,000 beds available in the general and special hospitals—apart from about the same number in mental hospitals—and a fleet of more than 150 ambulances is in commission to serve them. Year by year there have been developments in the provision of pathological, specialised and consultant services, outpatient departments, convalescent hospitals and maternity services. Of the council's medical staff of 900, 400 are full-time hospital residents. Its hospitals play an increasing part in medical education; 16 general hospitals are affiliated to the undergraduate teaching schools, and the British Postgraduate Medical School is attached to Hammersmith Hospital. The mental hospital service has expanded on the most modern lines in respect to classification, treatment, occupation and aftercare, and also provides educational facilities.

It is naturally in the developments of the public-health services of the council that the doctors of London will take special pride. They will reflect that the direction of the staff of a public health department which numbers well over 20,000 workers requires personal qualities of an exceptional kind in its chief officer, and that the council has been well served by its medical officers of health. In Sir SHIRLEY MURPHY, Sir WILLIAM HAMER, and Sir FREDERICK MENZIES it has had a succession of departmental chiefs whose work has won for them a world-wide reputation. It is in no small measure due to the council's acumen in selecting officers for positions of onerous responsibility that Londoners are able to view with justifiable satisfaction the achievements of the last fifty years.

ANNOTATIONS

TWO CORTICAL HORMONES

SOME time ago we alluded[1] to the possibility that there might be two hormones, with different physiological activities, in extracts of suprarenal cortex. It appears that this is indeed the case, for Hartman and his co-workers[2] report that they can separate suprarenal extracts into two fractions. The first contains a factor, cortin, which will keep suprarenalectomised animals alive and well for many weeks, though their serum-sodiums remain exceedingly low; the second contains a factor that causes a retention of sodium chloride by the animals and raises the serum-sodium. This second factor apparently does not maintain life; and this is rather strange, since the administration of sodium salts has been shown to secure the survival of suprarenalectomised dogs over long periods.[3]

The separation of these two factors should be a very valuable step in the elucidation of the functions of the suprarenal gland. From the clinical point of view it is obvious that many of our difficulties in treatment may have been due to the fact that our extracts of the gland contained different amounts of the two hormones; for although the sodium hormone seems not to be essential to the cat there may very well be species differences and it may be much more important to man. It will be interesting to see which of these two hormones controls the hypoglycæmic aspects of suprarenal deficiency and which the level of potassium in the blood. Further discoveries may now be awaited with confidence and it is to be hoped that they may lead to more effective therapy.

COMPLEMENT FIXATION IN LYMPHOCYTIC CHORIOMENINGITIS

RECOVERY from certain virus diseases, such as yellow fever, is followed by the appearance of virucidal antibodies in the blood in high titre for long periods and probably for life. The presence or absence of these immune bodies therefore gives definite evidence of whether a person has ever suffered from yellow fever. In other virus diseases, such as psittacosis, virucidal antibodies are either absent or present only for short periods: this is true of lymphocytic choriomeningitis. Since lymphocytic choriomeningitis is by no means easy to distinguish clinically from other forms of benign lymphocytic meningitis, a reliable method of diagnosis is of considerable importance. As in psittacosis, complement fixation appears to provide such a method. Complement fixation was first demonstrated in lymphocytic choriomeningitis by Howitt[4] in the presence of mixtures of a suspension of guineapig brain infected with the virus and hyperimmune serum from guineapigs. The test has recently been applied to the diagnosis in man in France by Lépine, Mollaret and Sautter[5] and in the United States by Smadel, Baird and Wall.[6] The organs of mice dying of the disease do not provide satisfactory antigen, while the spleen, liver and brain of guineapigs may give somewhat inconstant results presumably owing to variations in their virus content. The most satisfactory antigen appears to be provided by the lungs of guineapigs acutely ill as a result of infection with the virus of lymphocytic choriomeningitis. The French workers in studying the reaction in sixteen persons who had been experimentally infected with the disease found that complement-fixing antibodies appeared in the sera of all, usually about the eleventh day of illness. Complement fixation was strongly positive 132 days later, feebly positive up to 172 days and consistently negative after 199 days. The American workers have shown that complement fixation depends on the presence in the tissues of a soluble specific antigen, since the virus freed from the soluble antigen fixes complement poorly or not at all.

THE SYME ORATION

SIR Alfred Webb-Johnson last Saturday delivered the Syme oration to the Royal Australasian College of Surgeons. He was the bearer of messages from Queen Mary and from the Royal College of Surgeons of England and he also took various gifts linking the new college with its forerunners in this country. From Lord Ebbisham came a copy of Sidney Young's "Annals of the Barber Surgeons"; from Sir Cuthbert Wallace a copy, given him by the author, of Sir William MacCormac's volume celebrating the centenary of the Royal College of Surgeons of England; and from the Syme lecturer himself some of the writings of Sir Charles Bell, a copy of South's "Craft of Surgery," and a portrait of Lister, by Francis E. Hodge, after the one by W. W. Ouless that hangs on the staircase in Lincoln's Inn Fields.

As the title of his oration Sir Alfred took Surgery in England in the Making. In early Norman times two classes of men practised surgery, each of which formed a craft guild, which became the cradle of the corporate life of surgery in England. First there were the military surgeons, who represented the aristocracy of surgery and accompanied the king and nobles to the wars. These men had some degree of learning and, if not themselves trained in one of the continental schools of medicine, were in touch with those who had been so trained. The second were the barbers; for after various papal edicts had prohibited priests from practising surgery, their assistants, the barbers, began to practise on their own. The members of the guild of surgeons were not numerous and were often away at the wars, whereas the barbers were stay-at-home and many, whence the barbers' guild became a serious rival of the surgeons'. Even the formation of a conjoint faculty of physicians and surgeons in the reign of Henry VI failed to defeat the barbers. Later, the surgeons' guild was checkmated by the grant of a royal charter to the barbers by Edward IV, and the first senior warden of the incorporated company was serjeant surgeon to the king. Thereafter peace was sought through coöperation, and in the reign of Henry VII a voluntary alliance was made between the surgeons and the barbers, which led to union of the two bodies in 1540 by act of Parliament in the reign of Henry VIII, commemorated by a painting by Holbein in Barbers' Hall that was later saved from the fire of London in 1666. By this union the surgeons gained municipal and corporate advantages and shared the splendid Barbers' Hall, which became, together with St Thomas's and St Bartholomew's Hospitals, a great teaching centre.

Union did not cure their differences, however,

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1. *Lancet*, 1937, 2, 1498
2. Hartman, F. A., Spoor, H. J., and Lewis, L. A., *Science*, March 3, 1939, p. 201
3. Harrop, G. A., Soffer, L. J., Nicholson, W. M., and Strauss, M. B., *J. exp. Med.* 1935, 61, 839
4. Howitt, B. F., *J. Immunol.* 1937, 33, 235
5. Lépine, P., Mollaret, P., and Sautter, V., *C.R. Soc. Biol. Paris*, 1938, 129, 925
6. Smadel, J. F., Baird, R. D., and Wall, M., *Proc. Soc. exp. Biol., N.Y.* 1939, 40, 71

and in 1745 the surgeons were incorporated as a separate company by act of Parliament and built a hall in the Old Bailey, at which the first masters of anatomy were Percivall Pott and William Hunter. This step was soon followed by the opening of private schools of anatomy, such as William Hunter's in Great Windmill Street, where the house now forms the dressing rooms of the Lyric Theatre, the present stage door being where the bodies were carried in for dissection. The governors of the new company did not adhere strictly to the regulations laid down by the act and so forfeited their powers. To put matters right the Royal College of Surgeons was established by royal charter in 1800 (300 years after the founding of the College of Physicians) and a new surgeons' hall was built where it stands today.

PRIMARY SUTURE OF SACROCOCCYGEAL SINUSES

THE much higher incidence of recurrences reported after excision and primary suture has hitherto deterred surgeons from treating sacrococcygeal sinuses in this way rather than by draining the wound and allowing it to heal by granulation. Thus Gage[1] of New Orleans quotes reports of a recurrence-rate of 33 per cent. with primary suture compared with 1 per cent. with the open method. Gage has however evolved a technique by which he has carried out primary suture in 42 cases without a single recurrence. In 10 of these the wounds became infected and the skin did not heal by first intention, but only 1 had to be reopened and all healed soundly in the end. Using the same method, L. H. Strug obtained primary healing of the wound in 52 of 54 cases and had no recurrence. Gage probably owes his success mainly to the care he takes to obliterate the dead space left in the wound after the sinus and its accompanying cysts and secondary tracts have been excised. Previous observers[2] have pointed out that a large subcutaneous space, almost necessarily infected, is bound to become filled with granulation tissue and to form fresh sinuses to the surface, and this is the difficulty that packing the wound and allowing it to granulate from below upwards is intended to overcome. According to Gage there are three causes of failure in primary suture—all under the control of the surgeon. These are infection of the deep parts of the wound; failure to remove all the secondary sinuses; and non-obliteration of the dead space. When there is acute infection he is content with simple incision and drainage, and allows six months to elapse before attempting radical cure. When the presence of accessory sinuses points to recent secondary infection he insists on ten days' preparation of the operation site with hot tub baths and hot compresses of hypertonic saline. To ensure that the primary and all accessory tracts are removed as completely as possible, Gage advises the preliminary injection of methylene blue. McKirdie,[3] on the other hand, regards the use of dye as of questionable value, for in his opinion it is likely to be injected either with too much force, when it opens up non-infected spaces, or with too little so that it does not penetrate the smaller radicles and gives a false sense of security. Lipiodol injection is recommended by both Gage and McKirdie when it is wished to demonstrate radiologically the connexion between a sinus and the sacral canal, though it is probably best omitted when there is active infection. Complete excision of the various tracts with removal of the minimum of subcutaneous tissue makes subsequent obliteration of the dead space easier, and all bleeding must be stopped. Gage inserts his deepest sutures so as to fix the subcutaneous tissues to the periosteum. He closes the wound and then applies direct pressure by means of a sterile marine sponge applied wet and held in position by adhesive strapping. The dressing is left undisturbed for 10–12 days.

PSYCHOTHERAPY IN GENERAL PRACTICE

THE general practitioner has always used psychotherapy but only in recent years has he consciously based his approach to functional disease on defined principles. These are usually derived from more than one school of psychopathology and the manner of their application is liable to vary not only with the needs of the patient but with the time at the practitioner's disposal. This time-factor affects his technique much more than it does that of a specialist, and indeed the success of his travels along tortuous psychological paths is likely to depend on his skill in finding short cuts. Some that have proved serviceable in general practice are outlined by Dr. Martin Raven in a modest account of the fruits of his own experience.[1] He disposes first of the precept, which used to be taught in medical schools, that before diagnosing a case as functional it is essential to exclude the possibility of organic disease; this "is beyond the power of man." Doctors whose minds have been over-impressed with the danger of missing a physical lesion are liable, after an unsuccessful search for one, to fall back on such unsatisfactory labels as intestinal toxæmia, endocrine imbalance or tired heart. Dr. Raven advises them instead to assume the presence of functional disease and to test the assumption by exploring the patient's complaints for such characteristics as a remarkable diversity or an obvious exaggeration of symptoms and for their projection to areas which have previously been the site of organic trouble. To deal adequately and rationally with such symptoms without giving the patient another peg to hang a complaint on or increasing his sense of self-importance by prolonged and inconclusive investigations, is no easy task. But the most formidable difficulty, when symptoms persist, is to introduce the idea that they are the result of emotional disturbances rather than of physical disability, without losing the confidence of the patient. To achieve this end the practitioner is advised to adopt at first a passive rôle, encouraging the patient to talk not of his physical sufferings but of his psychological life-story. In the course of informal sessions evidence may emerge of a withdrawal of a valued emotion, leading to a disillusionment that may not even be admitted but proves to be the key to the neurosis. Dr. Raven says that when he begins his own innings of talking he finds it useful to explain the need for a reasonable balance between the acquisitive, the reproductive, and the herd instinct if social poise is to be maintained. Knowing well that the patient's emotional life is mostly at fault he starts, as a matter of policy, with the investigation of the other instincts. He seeks evidence first of such common symptoms as a tendency to over-spend or over-save money, or of a failure to take the slightest interest in the daily news: the doings of dictators and democracies are not of the least concern to the neurotic as compared with

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[1] Gage, M., Ann. Surg. February, 1939, p. 291.

[2] Rogers, H., and Dwight, R. W., Ann. Surg. 1938, 107, 400. See *Lancet*, 1938, 1, 1113.

[3] McKirdie, M., Ann. Surg. 1938, 107, 389.

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[1] Raven, M. O., *Practitioner*, February, 1939, p. 212.

his own troubles. Here are pointers to constructive rebuilding. It is to be regretted that Dr Raven does not give more details of the manner of his transition to the emotional side of the story, but he offers other good advice of a general nature: to foster a humorous outlook, to remember the occasional need for a "face-saver" and to avoid the mistake of deflecting attention from personality to environment until all efforts to secure adjustment have failed. Removal of a troublesome patient to some sort of retreat may be recommended in order to give respite to long-suffering relatives, but from the patient's point of view this measure is only justifiable as a last resort. There is a refreshing absence of jargon and much common sense in this scheme of attack on disorders which prove disheartening to all concerned unless they are tackled with insight.

TROPICAL MACROCYTIC ANÆMIA

Wills[1] first showed in 1931 that patients with tropical macrocytic anæmia responded as well to Marmite as they did to crude liver extracts and were also able to secrete free hydrochloric acid; they thus differed in two important respects from those with addisonian pernicious anæmia. It was therefore suggested that the mechanism of the deficient production of the active liver principle was different in the two conditions. Marmite was regarded as a source of Castle's extrinsic factor and tropical macrocytic anæmia was thought to be due to a deficiency of extrinsic factor only. Subsequent work, recently reviewed by Napier,[2] has modified this view. Tropical macrocytic anæmia has been shown by Napier, by Wills and Evans[3] and by Fairley and Bromfield[4] to respond to impure liver extracts like Campolon and Hepastab but to be unaffected by anahæmin, a highly purified fraction effective in pernicious anæmia. These observations have led to the suggestion that in tropical macrocytic anæmia the deficient substance is not Castle's extrinsic factor but an independent hæmopoietic principle present both in autolysed yeast and in impure liver fractions. Napier and Fairley are both impressed by the part played by hyperplasia of the reticulo-endothelial system, produced by malarial infection, in the ætiology of tropical anæmia. Napier[5] regards excessive hæmolysis due to such hypertrophy of the reticulo-endothelial system as the factor necessary to convert an adequate diet into an inadequate one. A good mixed diet supplies sufficient hæmopoietic principle to make good normal wear and tear, but in the presence of abnormal cell destruction the poor diet of many natives fails to do this and macrocytic anæmia results. Napier points out that on the whole lower levels of serum-bilirubin are found in tropical anæmia than in addisonian pernicious anæmia. It must, however, be remembered that now that untreated cases of long-standing pernicious anæmia are rare it is exceptional to find a high level of serum-bilirubin in this condition (Vaughan and Haslewood[6]). Napier also suggests that the level of serum-bilirubin is a measure of hæmolysis, but Watson[7] has shown that bilirubin levels are controlled by liver efficiency rather than the rate of hæmolysis. In the present state of knowledge it seems unwise to classify anæmias as hæmolytic or non-hæmolytic on a basis of serum-bilirubin only. As Napier says, careful quantitative work with purified fractions of liver and autolysed yeast is needed if the part played by different hæmopoietic principles is to be clarified, and quantitative studies of pigment metabolism are also required if the differences between these closely allied macrocytic anæmias are to be elucidated.

PSITTACOSIS AND FULMAR PETRELS

Rasmussen's[1] conjecture that the epidemic pulmonary disease of the Faroes is a form of psittacosis has been confirmed by Haagen and Mauer[2] in Berlin. They examined material both from birds and from Faroe islanders who had contracted the disease. By staining methods, intraperitoneal inoculation and passage experiments in mice, and intramuscular inoculation of young budgerigars they have proved the identity of the virus of the Faroes epidemic with that of psittacosis. Haagen and Mauer say that the young petrels are caught on the cliffs before they are fully fledged, and that they *try to defend themselves by striking with their wings* and thus scatter the dust from their down. This dust is supposed to bear the dried virus and is inhaled by the islanders when catching the birds. The Faroe women are most liable to catch the infection when they pluck the petrels in a stuffy room; in fact the incidence of the Faroes epidemic was greater among the women than among the men. In this connexion it is significant that the infection of human beings by parrots with psittacosis occurs chiefly when the birds are moulting. Haagen and Mauer claim that, since this disease has now been shown not to depend on birds of the parrot family alone, it should no longer be called psittacosis, and they suggest two terms, epidemic pneumonia and virus pneumonia, neither of which, however, seems very happy. The danger of other close communities of birds, especially seagulls, as a source of infection to man is pointed out. Seagulls have already been accused, but not proved guilty, of spreading foot-and-mouth disease.

SURGERY THROUGH THE AGES

Mr Harvey Graham has presented the history of surgery from the earliest to modern times—with a glimpse into the future—as an absorbing story, to which Dr. O St. John Gogarty contributes an entertaining foreword.[3] In its separate parts the story is perhaps less unfamiliar than the modest preface seems to suggest; but we can recall no narrative connecting them in proper perspective that is at once so accurate and so coherent as this one. The author's task must have been laborious. It has taken him into many different departments of human knowledge, enterprise and experiment, and clearly involved a discriminating study of many more authorities than are named in the three pages of bibliography. Mr Graham begins with an account of the surgery of primitive man, drawing an imaginary picture of the first trepanning of the skull, the earliest and in fact the only primitive operation of which we have any knowledge. From this point he pursues the developments of surgery through the civilisations of Egypt, China, India, Greece, Alexandria, Rome and the Middle Ages. So far his book is essentially world wide in its scope; after the Renaissance, though there

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[1] Wills, L., *Brit. med. J.* 1931, 1, 1059.
[2] Napier, L. E., *Indian med. Gaz.* January, 1939, p. 1.
[3] Wills, and Evans, B. D. F., *Lancet*, 1938, 2, 416.
[4] Fairley, N. H., and Bromfield, R. J., *Trans. R. Soc. trop. Med. Hyg.* 1938, 32, 132.
[5] Napier, *Lancet*, 1936, 2, 679.
[6] Vaughan, J. M., and Haslewood, G. A. D., *Ibid*, 1938, 1, 133.
[7] Watson, C. J., *Arch. intern. Med.* 1937, 59, 206.

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[1] See *Lancet*, 1938, 2, 1036.
[2] Haagen, von E., and Mauer, G., *Dtsch. med. Wschr.* Jan. 6, 1939, p. 13.
[3] Surgeons All. By Harvey Graham. London: Rich and Cowan. 1939. Pp. 426. 18s.

are many references to the famous names of other lands, he gives the bulk of his space to surgery in England, tracing with especial detail the progress of the art in the 18th and 19th centuries. He also describes the sordid business of body snatching, discusses the prevalent forms of quackery, gives examples of the amazing contentiousness of surgeons in the 18th century and displays with effective colour the triumphs of antisepsis and anæsthesia. It is no disparagement of the earlier part of a book whose design has been carefully drawn and balanced to note that when the author approaches the age of our grandfathers it gets exciting. Till then the story is efficiently and simply told; suddenly it begins to glow. Mr Graham has arrived at the period which most interests him and he communicates his enthusiasm to his readers. His notes on the surgeons of our times and his vision of the future show that he writes with inside knowledge of our profession, though he does not use it in such a way as to restrict the range of appeal of his work. It will certainly be enjoyed and its illustrations will be appreciated by laymen as well as by doctors.

BRONCHIAL THERAPEUTICS

A FULLER explanation of spasmodic bronchial disease, notably asthma, seems to be near at hand. Knowledge of normal bronchial physiology is increasing and methods of experiment have been devised which allow of exact and unequivocal interpretation of bronchial reactions. Last year Maxwell Ellis[1] showed that bronchial muscle normally possesses a definite tone, which may vary slightly from time to time, and that it stretches to accommodate the inrush of air at each inspiratory movement. In a previous paper[2] he had illustrated the constricting effects of vagal stimulation and the relaxation following vagal paralysis and sympathetic stimulation. Others have observed similar phenomena, but the advantage claimed for Ellis's method, besides its sensitiveness, is that the condition of the experimental animal is almost normal, so that the results obtained are clinically applicable. Frenckner[3] and his associates use a similar method which they call bronchospirometry to measure the function of each lung separately.

Binet and Burstein[4 5] have lately investigated the action on the bronchial tubes of the choline derivatives, which are extremely powerful vagotonic substances and may in fact be the normal physiological activators. They use a modification of Einthoven's older method, and work either with the isolated lung or on an animal with its thorax opened, kept alive in a respirator. Differences in the intratracheal pressures are used to indicate changes in the bronchial lumina. Their results are clear cut; they find that carbaminyl choline has the greatest constricting effect, and that this can be both prevented and antagonised by adrenaline, atropine, and ascorbic acid. The last result is important, and if it is confirmed when a more physiological experimental method is used it should open up a fresh aspect of asthma therapy.

As a corollary to these investigations Bourgeois, Chauveau and Dos Ghali[6] report the case of a man of 37 who had suffered from recurrent hæmoptysis and had coughed up copious mucopurulent sputum since the age of 15. A diagnosis of bilateral generalised bronchiectasis was made and it was decided to employ Arnulf's method of infiltrating the stellate ganglion with procaine. The result was immediately successful. After nine injections his sputum diminished from its former 600–700 c cm to 80 c cm a day and his general condition improved enormously. It is difficult to explain this result, but the local anæsthetic may have spread to vagal fibres and so paralysed the secretory bronchial glands.

THE ROYAL SOCIETY ELECTIONS

AMONG the 20 newly elected fellows of the Royal Society set out on another page we welcome 5 medical men. The monumental contribution to descriptive human morbid histology of H. M. Turnbull reaches far beyond the observations published under his name; he has been tireless in placing his vast store of knowledge at the disposal of colleagues and in the encouragement and guidance of his pupils. C. H. Andrewes is one of the younger members of the team of experimental pathologists at the National Institute for Medical Research who first transmitted influenza virus to ferrets and mice; he has also worked on fowl tumour viruses and has thrown light on the mode of action and properties of antiviral sera. *F. A. E. Crew* has directed a school of research into animal genetics and the biology of sex and of reproduction. E. G. T. Liddell has made notable contributions to the physiology of the nervous system. V. B. Wigglesworth has done original work on several aspects of the physiology of insects. Among those not medically qualified whose researches are indirectly associated with medicine are F. W. Edwards, who is an authority on diptera and culicidæ, and G. S. Adair, who has worked on the physical chemistry of proteins particularly in connexion with hæmoglobin. E. J. Maskell is doing experimental work in plant physiology, especially in relation to translocation and G. W. C. Kaye, a former president of the British Institute of Radiology, is an authority on X ray measurements, acoustics, and the physical aspects of radiotherapy.

THE EFFECTS OF A T 10 ON METABOLISM

A FEW months ago[1] we referred to comparisons made by Albright and his colleagues of the actions of vitamin D, A T 10 (dihydrotachysterol), and parathyroid hormone in cases of idiopathic hypoparathyroidism. These patients were chosen for study in order to eliminate complications through variations in the spontaneous activity of the parathyroids. It was found that both vitamin D and A T 10 increased calcium absorption from the gut and urinary phosphate excretion, the former action being predominant with vitamin D, and the latter with A T 10. The primary action of parathyroid hormone (tested on one of the three cases) was solely to increase urinary phosphate excretion.[1] These observations have now been extended[2] by the study of a boy, aged 17, with rickets resistant to vitamin D. Previous investigation had shown that the metabolic abnormality in this patient was the same as that in ordinary rickets, but massive doses of vitamin D were required to control the condition. Administration of A T 10 produced a distinct increase in the amount of calcium absorbed from the gut and the serum calcium was raised from 9 9 mg per 100 c cm to 13 3 mg per 100 c cm. The increase in the urinary-phosphate output and the negative phosphorus balance were not so pronounced as in the patients with hypoparathyroidism; the diminution of the effect on phosphate metabolism is attributed to decreased activity of the parathyroids brought about by the raised serum-calcium. While administration of Parathormone greatly increased the urinary-phosphate excretion, massive doses of vitamin D had no such effect in this patient; in fact the increased absorption of phosphorus from the gut associated with a daily dose of 1,500,000 units of vitamin D led to a positive balance of nearly 0·5 g phosphorus per day. The fact that A.T. 10 increases urinary-phosphate excretion so much more than calcium absorption is offered as an explanation of why this substance is not antirachitic. The effect of the three substances on calcium and phosphorus metabolism in the cases investigated is provisionally summarised as follows: calcium absorption, vitamin D +++, A.T. 10 +, parathyroid hormone 0; phosphorus excretion in urine, vitamin D +, A.T. 10 +++, parathyroid hormone ++++.

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[1] Ellis M, *Lancet* 1936 1 819 223
[2] Ellis *J Physiol* 1936 84
[3] Frenckner P *Acta oto laryng Stockh* 1934 suppl 20
[4] Binet L and Burstein M *Pr méd* Feb 11, 1939 p 217
[5] Binet and Burstein *Bull Soc méd Hôp Paris* Feb 27, 1939 p 267
[6] Bourgeois P Chauveau, J and Dos Ghali J, *Ibid*, p 247

[1] *Lancet* 1938 2 1363
[2] Albright, F, Sulkowitch H W, and Bloomberg, E *J clin Invest* January 1939 p 165

POSTENCEPHALITIC PARKINSONISM

In few chronic diseases does the hope not merely of improvement but of complete recovery seem to the lay mind so fully warranted as in the disorders left by Economo's lethargic encephalitis. Even after years of mental or bodily impairment, or both, many sufferers have occasional short intervals in which they seem quite suddenly to be their old selves again. The parkinsonian who sits day after day crippled and bent in his chair may on some sudden excitement jump up and run across the room as well as ever he did. These temporary returns of the patient to normality naturally keep alive in his anxious relatives the feeling that, as in the hysteric, something may be found some day which will restore him to complete health. To the medical man such hopes are vain. Whatever may be the real nature of either, chronic epidemic encephalitis and hysteria are not one and the same.

For the last twenty years it has been known that the atropine group of alkaloids can relieve the muscular stiffness and excessive salivary outflow in these cases, provided they are given in sufficient amount and the treatment is continued. Although these appear to be the limits of their direct action, yet the euphoria to which this relief gives rise reacts favourably on the whole system. One can only compare the astonishing effects in some cases with the improvement brought about in pernicious anæmia by liver extract or in myxœdema by thyroid; but, as in these latter, relief only goes on so long as treatment is continued. From time to time various forms of the atropine series have been lauded as more efficacious than the rest, and there is a curious similarity in their successive claims, methods and reported results. Treatment is carried out at an institution, sometimes for this special kind of case only, under a strict regime of diet with massage or gymnastic exercises. In these respects there is some resemblance to a spa, and unfortunately the word cure has been attached to some of these methods as it has to our spas. In English the word "cure" implies "complete recovery," whilst in German it only means "a line of treatment"—a very different thing. This somewhat confusing word cure has lately been applied to the treatment of parkinsonism by the Bulgarian form of belladonna. Put to the crucial test of giving them unknown to the patient, without any other kind of treatment, the preparations of the Bulgarian root have repeatedly been shown to do neither more nor less than those of roots grown elsewhere. Possibly they may have some slight superiority in convenience of dosage, in the absence of unpleasant effects, or in other minor ways, as Dr. Neuwahl points out in this issue; but the results as regards complete restoration to health by the so-called *Bulgakur* cannot be said to have been substantiated. There is no doubt that a course of institutional treatment with the associated encouragement, amusement and occupational hygiene, to say nothing of the personal interest taken in the individual patient, offers great help to the chronic encephalitic. If in addition some form of atropine therapy in sufficient dose and suitable form is adopted the benefit is occasionally dramatic and may continue for a long time, provided the treatment is kept up.

THE HEALTH RESORTS

"British Health Resorts," the official handbook of the British Health Resorts Association, is published this year for the first time as the property of the association, and it contains additional matter on medicinal waters and the action of different kinds of baths, together with facts about temperature, sunshine, and humidity, and maps and photographs which convey a great deal of useful information. The particulars of the separate spas have been revised after making visitations during the past two years to the resorts by arrangement with the British Spas Federation, and new meteorological statistics embellish the attractive section on "the invalid's winter on the coast." The Minister of Health contributes a foreword, in which he says that the spas play their part in the national fitness campaign and forecasts an increased resort to them as a result of holidays with pay.

The handbook may be had from the association (Tavistock House South, Tavistock Square, London, W.C.1) at 2*s* 6*d*. In compiling the present issue the editor, Dr. Fortescue Fox, has had the assistance of Dr. Wyndham Lloyd.

We regret to announce the death on March 20 of Dr. J. S. Risien Russell, consulting physician to the National Hospital, Queen Square, W.C.1.

We have also to report that Dr. Roy Dobbin, professor of midwifery and gynæcology at Cairo, died in Egypt on March 21.

On April 5, at 5 P.M., Prof. René Leriche, Hon. F.R.C.S., will deliver the Lister memorial lecture to the Royal College of Surgeons of England.

Next Monday Messrs J. and A. Churchill Ltd will publish "Medical Organisation and Surgical Practice in Air Raids," by Mr P. H. Mitchiner and Mr E. M. Cowell. This is a book to which our readers need no introduction, for portions of it have been appearing weekly in our columns since the beginning of the year under the title "The Air-raid." We understand that the volume will contain additional information and a fuller treatment of the subject, together with many illustrations.

Women in Russia.—It is stated that some 10,000,000 women in Soviet Russia are employed in factories and offices, and 19,000,000 on collective farms. The number of women doctors is given as 53,400 and there are more than 12,000 scientific workers. In 1937 over 20 per cent. of the 29,000,000 women employed were working in the education and public-health services, and 40 per cent. in industry and the building trades.

Since the law prohibiting abortion and subsidising large families was passed in June, 1936, over 2,000,000,000 roubles have been paid in bonuses to mothers.

SPECIAL ARTICLES

EFFECTS OF LEAD ON THE BODY

INDUSTRIAL workers in many processes are exposed to the risk of lead poisoning, but fortunately the risk is known and preventive measures have been adopted with the result that the numbers of cases of industrial lead poisoning in this country have fallen from 1058 in 1900 to 141 in 1937 The risk of poisoning from lead in public water supplies is also now well under control It has been suggested however that the general population are being exposed to small but increasing amounts of lead from such sources as the fumes of tetra ethyl lead in petrol, sweets and chocolates, canned foods, and fruit and vegetables which have been treated with insecticides containing lead arsenate The lead paint used on buildings becomes weathered into dust in the course of time and doubtless contributes to the amount of lead liable to be absorbed, though this factor is probably not as important here as in hot dry climates

The presence of lead in various foodstuffs has been dealt with in detail by Monier Williams,[1] and Minot[2] has recently reviewed the known facts about the effects of small amounts of lead absorbed into the body Fortunately for a study of this kind, delicate, specific and accurate tests for lead have been discovered during the last fifteen years, the one most favoured being the "dithizone" test based on the reaction between lead and di phenyl thio carbazone Monier-Williams finds that the most satisfactory modification of this test is one that involves the extraction of lead with dithizone, precipitation as the sulphate, and determination colorimetrically as the sulphide Fairhall, who introduced a quantitative titration method of estimating lead as chromate in biological material, also describes a qualitative microchemical test based on the formation of characteristic crystals of a complex potassium lead copper hexanitrite

NORMAL INTAKE AND THE POISONOUS DOSE

Minot states that the amount of lead absorbed and retained in the body even in fatal cases of poisoning is usually less than a gramme It is important therefore to estimate as accurately as possible how much lead the average individual absorbs and excretes in a day, and also to establish the margin between this small amount and the quantity which is likely to cause clinical lead poisoning Aub and his co workers in Boston in 1926, using Fairhall's method, found no lead in the urine and tissues of individuals who had not been unusually exposed to lead On the other hand Kehoe and others in Cincinnati in the same year found (with the diphenyl carbazide test) small amounts of lead in each of 65 normal people

Since then other workers, using various methods, have found that lead is a normal constituent of the excreta and body tissues of people living under present day conditions even when they are not exposed to lead in industrial processes Tompsett and Anderson, for instance, working in Glasgow in 1936 and using the dithizone method, found lead in all the tissues analysed of 20 people not exposed to lead in their occupations More lead was found in the bones than in any other tissue, and it was noteworthy that the tissues of a child aged two years contained lead in about the same concentrations as those of an adult

The uniformity of the results obtained by independent investigators in widely separated parts of the world leaves no doubt that the average individual in modern civilised communities ingests or inhales small amounts of lead, probably from 0 2 to 0 4 mg daily Excretion more or less keeps pace with intake but some lead is retained in the body and may be detected in the blood and the soft tissues, though most is stored in the bones and teeth

Estimates of the amounts of lead which can cause poisoning vary greatly, some workers putting the figure at 10–20 mg and others as low as 1 mg a day Minot rightly points out that attempts to predict the danger of a given exposure to lead result at best in rough estimates because individuals differ widely in their susceptibility, and because the path of entry largely determines the onset and severity of the clinical signs and symptoms Fat soluble organic compounds of lead, such as tetra ethyl lead, are absorbed through the skin, but other forms of the metal enter the body through either the respiratory or the alimentary tracts Not all lead taken into the stomach is absorbed into the general circulation, for non soluble compounds are excreted in the fæces and soluble compounds are carried to the liver, where some of the lead is either stored or excreted in the bile and the rest is distributed to other tissues of the body When lead is introduced into the respiratory tract it reaches the general circulation rapidly, and therefore lead which is inhaled is more dangerous than that which is ingested

FATE AFTER ABSORPTION

Complete agreement has not been reached about the biochemical behaviour of lead in the body Fairhall and Shaw and Aub and his co workers say that lead is probably transported in the blood as the more soluble di lead phosphate, and is stored in the bones as the insoluble triple phosphate On the other hand Maxwell and Bischoff are of the opinion that lead is carried in the blood as diphospho glycerate, whereas Jowett presents evidence that lead forms a complex inorganic phosphate containing calcium and chlorine Whatever the form in which lead is carried in the blood it is stored in the bones as the triple phosphate, which under conditions of slightly increased acidity can be converted into a more soluble lead salt and excreted either through the kidneys or the alimentary tract

A close analogy exists between lead and calcium in their distribution, storage, mobilisation and excretion, and for this reason the state of the calcium nutrition, the acid base equilibrium, and the activity of the parathyroids all play a part in determining whether lead retained in the body is stored harmlessly in the bones or whether it circulates in the blood stream and attacks the tissue cells *The amount of* lead excreted in the urine is a better indication of the risk to health than the fæcal lead, because if lead appears in the urine it must have been absorbed into the blood Kehoe and others, after extensive studies of persons industrially exposed to lead, came to the conclusion that if not more than 0 15 mg of lead is passed in the urine each day the exposures will probably not result in clinical plumbism Other workers have set the figure lower than this but all the estimates given are much higher than the amounts reported to be present in the urine of individuals who have not been unusually exposed to lead.

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[1] Monier-Williams G W *Rep publ Hlth med Subj, Lond* No 88 1938 See *Lancet*, 1938, 2 1371

[2] Minot, A S *Physiol Rev* 1938, 18 554

Very various estimates have been made of the concentrations of lead in normal blood, but there is a reassuring difference between the amounts found in normal people and in cases showing early signs of lead poisoning. The figures range, with different methods and investigators, from 0·0–0·2 mg per 100 c cm in people not industrially exposed to lead to 0·38 mg per 100 c cm in patients with lead poisoning. S. L Tompsett and A. B. Anderson, who had previously suggested that the estimation of blood-lead appears to be a more satisfactory method of investigating cases of poisoning than the determination of the excretion of lead, recorded in THE LANCET of March 11 the quantities of lead obtained in the blood and excreta of 29 suspected cases of lead-poisoning. In 10 out of 11 cases in which the diagnosis was confirmed the lead content of the blood was higher than 0·1 mg per 100 c cm. (100 μg per 100 ml). In the remaining case the blood-lead was only 0·75 mg per 100 c cm , but 1·27 mg of lead was excreted daily in the urine and fæces. This case was classified as one of chronic plumbism, and it shows that where there is doubt it may be necessary to determine the amount of lead excreted daily as well as the level of lead in the blood. These investigators suggest that lead-poisoning is probably present in cases in which more than 0·1 mg of lead per 100 c cm is found in the blood, or in which more than 1 mg of lead is excreted daily.

PHYSIOLOGICAL ACTION OF SMALL DOSES

The signs and symptoms of established lead poisoning are themselves so varied that attempts to assess the effect of small amounts of the metal on the human body must be very difficult. It is more useful therefore to study their effect on simpler forms of living organisms. Studies of the action of lead on fundamental biological processes are still somewhat fragmentary, but many interesting facts have been put on record. The growth of plants and animals is retarded when small amounts of lead are added to the nutrient media, the rate of growth becoming slower with increasing concentrations. There is some evidence that lead, through its action on enzymes, interferes with normal processes in living tissues. For example an increase in lipolytic activity in serum has been noted to follow the administration of lead; and very small amounts bring about a marked decrease in the oxygen consumption of the brain, kidney, liver and testis. In brain tissue lead almost completely abolishes the hydrogen transfer and markedly inhibits glycolysis. The rate of formation of immune bodies is also affected. In rabbits the production of hæmolysins and agglutinins is greatly increased but the formation of precipitins is retarded. The production of antitoxin against diphtheria is more rapid in animals receiving lead than in controls but no valid conclusions about immunity can be drawn from these results.

In the anæmia of lead poisoning the red cells show changes in the following order of frequency: (1) anæmic red cells, (2) anisocytosis, (3) polychromatophilia, (4) punctate basophilia or stippling, (5) poikilocytosis, and (6) nucleated red cells. Punctate basophilia does not occur in cats with lead poisoning, but it is a fairly constant feature of poisoning in man, rabbits and guineapigs. When washed red cells are exposed to the action of lead chloride they decrease in volume and become more rigid and brittle. Ørskov found that the shrinking of the red cells is accompanied by a rapid loss of potassium into the surrounding medium. These phenomena can be demonstrated in the blood of man and rabbits, but not in cats and goats. The close parallelism between the species in which this effect of lead on the red cells can be demonstrated and those in which anæmia and stippling are prominent signs in lead poisoning points to the fundamental importance of these changes in estimating the injurious action of lead. Exposure to lead shortens the life of the red cells in the circulating blood probably by the production of acid at the cell membrane, but the presence of inorganic phosphate in the blood-serum tends to protect the individual cells. In vitro the phagocytic power of the leucocytes is greatly reduced by exposure to lead but clinically in cases of lead poisoning the total white count is usually within normal limits. Some workers have however stressed the value of the polymorph lymphocyte ratio as a prognostic sign in persons exposed to lead.

The effect of lead on the function of skeletal muscle is to produce more rapid fatigue and slower recovery, fatigued muscles being more susceptible than resting muscles, probably because the former have a higher lactic-acid content which increases the solubility of the lead. The paresis noted in cases of lead poisoning is said to be caused by direct action on the muscle-fibres rather than by interference with nerve conduction.

As shown by the colic and constipation of clinical plumbism, lead has a marked effect on smooth muscle, but it has long been a moot point whether the muscle-fibres are affected directly, through peripheral or central nervous mechanisms, or by a combination of these factors. Grünberg's experiments in 1928 on many types of smooth muscle showed that in those tissues in which stimulation of the sympathetic system caused contraction lead also caused contraction of the muscle-fibres, and in tissues to which sympathetic stimulation was inhibitory lead also caused a cessation of the contractions. He concluded that the effect of lead on intestinal activity is (1) to inhibit the movements by local stimulation of the sympathetic endings, and (2) to set up intestinal contractions by a central action on the vagus nerve.

The smooth muscle of blood-vessels is apparently affected by lead in the same way as are other types of smooth muscle. The action has been shown in vitro, but it is still uncertain whether it plays a significant part in the functional disturbances or the pathological lesions of lead poisoning. Hypertension is often present in cases of lead poisoning, but it is difficult to know whether lead is the causal factor or not. Careful statistical studies could give useful information on this point, and the results of those now available are conflicting. Some workers find that prolonged exposure to lead increases the blood pressure, but Teleky after an extensive review of the literature concludes that up to the present there is no definite proof that high blood-pressure accompanies the early signs of lead poisoning, and he emphasises the need for further studies of the effect of prolonged absorption of small amounts of lead. It appears reasonable, however, to expect that vascular tone would be affected by an adequate concentration of lead in the blood-stream even if lead acts directly on vascular smooth muscle by stimulating the sympathetic nerve-endings. Indeed an impressive amount of clinical and pathological evidence goes to show that death in chronic lead poisoning is often due to cerebral hæmorrhage resulting from hypertension, and the kidneys in these cases show sclerosis of the arteries and arterioles with few points of difference from kidney changes seen in malignant hypertension

As regards the effect of lead on the nervous system, its presence in the brain, cord and spinal fluid when lesions of these structures are present in cases of lead poisoning leaves little doubt that lead is responsible for these abnormalities The clinical manifestations in definite cases range from sluggishness, poor memory and irritability to the paralyses and convulsive seizures of lead encephalopathy Some observers have recorded that people who have been long exposed to small amounts of lead show such symptoms as apathy, irritability, lack of confidence, unfounded fears, or inability to concentrate, and further that these symptoms diminish in severity when the source of poisoning is removed Minot comments that an extensive study would be necessary to establish any general causal relationship between such symptoms and the absorption of lead

In the present state of our knowledge we do not know what to look for in the average individual to establish the presence of slight damage from the absorption of small amounts of lead, and the usual signs and symptoms of plumbism can only be expected in the rare highly susceptible person In some cases it might be suspected that lead is setting up mild constipation, a tendency to anæmia, fatigue of the muscles, hypertension, or impaired nervous and mental function but these are symptoms of which there are many possible causes It is a matter of great concern whether modern practices concerning the use or abuse of lead are going to result in a gradually increasing lead exposure for the general population Minot suggests that the most satisfactory way of tackling the problem would be to study at intervals the amounts of lead in the blood and urine of large and representative groups of people living in both rural and urban communities

MEDICINE AND THE LAW

Alleged Responsibility of Local Authority for Doctors and Nurses

THE Manchester corporation was sued last week at Manchester assizes by the father of a boy who was alleged to have suffered from the negligence of doctors who were described as being the servants of the corporation Kenneth Ball, aged 10, met with an accident in the yard of the Openshaw Technical School during a "sports lesson" He was sent to the Gorton clinic Here, said counsel for the plaintiff, he was seen by a lady doctor who manipulated his arm, the arm was dressed by a nurse and he went back to school, next day he was told to attend the clinic every two hours, hot bandages were applied, later he was given a box of ointment to take home, for his mother to apply Fifteen days after the accident, as the treatment was unsuccessful, he was sent to the Royal Infirmary, he was radiographed and was found to have a fractured elbow "In ten days to a fortnight," said counsel, "the Manchester medical profession could not diagnose a fractured arm—just think of it, in a clinic The arm had become inflamed and painful after one application of the ointment Dermatitis developed and spread over the boy's arm, face and chest Some weeks later an operation was performed, the patient was not passed fit till several more weeks had elapsed and even now it would be three or four months before he was able to do any work

The corporation denied that the doctors or staff of the clinic were their servants so as to render the corporation liable When the plaintiff's case was finished, counsel for the defendants submitted that there was no case against the corporation even if there had been any evidence of negligence on the part of the doctors and nurses The corporation was exercising a function as the local education authority there was a statutory duty to provide treatment, but the only legal obligation was to appoint efficient medical officers and nurses This argument was presumably based on well known decisions such as Hillyer *v* St Bartholomew's Hospital To counter it, plaintiff's counsel contended that the negligence was administrative and not professional, inasmuch as it was not failure to diagnose a fracture but failure to use the proper facilities which the administrative authority had placed at the doctors' disposal The judge said that the boy's claim, as substantially put forward in the pleadings on paper, was based on negligent treatment, "such treatment," said the pleadings, "was administered by a doctor or doctors, such doctor or doctors being servants and/or agents of the defendants" Plaintiff's counsel had complained of the failure to have the boy's arm examined by X ray If the plaintiff complained of the method of diagnosis, was not that a matter for the medical profession? Could the corporation be liable for a delayed or faulty diagnosis, if that issue related to matters of medical discretion upon which the corporation could not give orders to the doctors? In the end the judge upheld the defendants' submission that there was no case against the corporation He said he had considered very anxiously whether he should not let the proceedings proceed to their final determination so as to decide whether what was said to be the basis of the action existed at all—because the fact that a professional man made a delayed or even a wrong diagnosis was not necessarily evidence of negligence against him at all The court decided, however, to dismiss the case without calling upon the defendants The corporation, upon a suggestion from the judge, did not ask for the costs to which their success would ordinarily have entitled them

Charge for Water from Surgery Tap

Is the water supplied to a surgery tap used for "domestic purposes" or otherwise? Dr D F Yuille, occupying premises in Kingston upon Hull as a residence, surgery and dispensary, had hot and cold water taps in a part of his surgery separated by a partition He used the cold water for household drinking purposes and for diluting medicines He used the hot water for washing his hands and for cleaning and disinfecting his surgical instruments and other articles belonging to him The Hull corporation had a scale of minimum annual charges containing an item "druggist or dispensary, 9*s*" It notified Dr Yuille that the annual charge for his surgery or dispensary would be 15*s*, the sum being calculated at the rate applicable to a druggist or dispensary The corporation contended that he used the water for "other than domestic purposes"—namely, for his "trade or business" The claim failed in the county court where the judge held that there was a mixed use which, viewed as a whole, was a use for domestic purposes The judge said that the application of the water for diluting medicines gave him the greatest difficulty in the decision because it was analogous to the use by druggists and dispensaries to which the special rate applied. He found a distinction, however, between a druggist who used water for compounding medicines sold to the public at large and a doctor who merely diluted such medicines as he supplied to his private patients

In the Court of Appeal Lord Justice Scott observed that the authorities clearly showed that the criterion must be the purpose for which the water was used. Water used for diluting medicine necessarily constituted a domestic purpose: there could be no more domestic purpose than internal administration If one drank a glass of water, it was a domestic purpose. The drinking of water with medicine in it—or, for the matter of that, with whisky in it—was plainly within the domestic category. As regards the use of water for washing surgical instruments, washing or cleaning was, prima facie, a domestic purpose To keep things clean was one of the most important objects in domestic life The Lord Justice saw no ground for saying that because the cleaned article happened to be a surgical instrument, the water ceased to be used for a domestic purpose, the nature of the use remained domestic even if the instruments were afterwards to be employed in the course of professional practice The corporation's appeal was dismissed with costs, but leave was given to appeal to the House of Lords

Two leading cases were cited during the arguments and judgments In Colleys Patents Ltd *v.* Metropolitan Water Board (1912) the water was supplied to a factory for the workmen's drinking and washing and for flushing urinals and water-closets Lord Mersey said that the real question was whether water used for the mere personal convenience of men employed in a factory could be said to be water used for the purposes of trade carried on in the factory In his opinion such a contention was not possible The House of Lords held on that occasion that the supply was for domestic purposes and not for trade purposes. In Metropolitan Water Board *v.* Avery (1914) water was used in connexion with the service of luncheons in a public-house and with cooking and washing up afterwards The judges of the divisional court, Court of Appeal and House of Lords all agreed that this was a domestic purpose. Any other decision, said Lord Dunedin, would be fragrantly in conflict with the common-sense view To say that this was a trade purpose would commit the court to the unreasonable position that, if a retail shopkeeper used a damp sponge for cleaning dusty goods, he would be liable to pay for the water at trade rates Dr. Yuille's defence was conducted by the London and Counties Medical Protection Society As the case may yet go to the House of Lords comment must be restrained meanwhile One may note nevertheless that distinguished judges have occasionally referred to the excess of subtlety which has been developed in the attempt to narrow the definition of domestic purposes and to expand the definition of trade purposes. The actual amount of water supplied from the surgery tap cannot be large and a disproportionate amount of the ratepayers' money seems to be lavished on the recovery of 15*s* from Dr. Yuille and such other practitioners as share his potential liability.

HOSPITALS DAY.—The London hospitals will this year again hold combined flag-days The general hospitals in inner London will collect on Tuesday, May 9, the general hospitals in outer London on Saturday, May 13, and the special hospitals on Tuesday, Oct 10 The combined collections for 1938 amounted to over £44,000 The address of the London Hospitals Street Collections Central Committee is 36, Kingsway, W C 2

PARIS

(FROM OUR OWN CORRESPONDENT)

FIFTY YEARS OF THE PASTEUR INSTITUTE

THE fifty-year jubilee of the Pasteur Institute, whose celebration last autumn was postponed on account of unforeseen circumstances, took place on March 15 in the institute and in the presence of a distinguished gathering M. Lebrun, President of the Republic, was surrounded by men whose names are household words, not only in France The recitation by the present director of the Pasteur Institute, Dr Louis Martin, of the exploits of the men of Pasteur's generation would have suggested the phrase "there were giants in those days," but for the presence in the flesh of so many other giants—Louis Martin himself in the first place, and the still youthful Ramon, to mention only two M Lebrun was accompanied by the ministers for the interior, for the colonies, and for public health Among those present were Dr. Pasteur-Vallery-Radot (Pasteur's grandson) Dr Adrien Loir (Pasteur's nephew), the presidents of the academies of medicine and surgery, Prof Roussy (rector of the University of Paris), Prof Bordet of Belgium, and delegates from various other countries, including England, Germany, Holland, Italy, and Poland It was the doyen of the faculty of medicine of Amsterdam who, in a brief but eloquent speech, voiced the sentiments of all the foreign delegates One of the most instructive speeches was delivered by Dr Pasteur-Vallery-Radot, who traced the development of Pasteur Institutes in different parts of the world occupied by the French. The first of these daughter institutes was established in Indo-China under Calmette, at that time quite a young man Since then the numerous younger daughter institutes have become famous chiefly because of the men who have been in charge of them, several of whom are still living. As one listened to these historically inspired addresses, the conviction grew that the history of microbiology is in large measure the history of Pasteur, his followers, and his institute Before leaving the grounds of the Pasteur Institute, M. Lebrun laid a wreath on Pasteur's tomb

OLD-AGE PENSIONS FOR DOCTORS

Superficially seductive, such a heading as Old-age Pensions for Doctors is, according to Maurice Mordagne, the mouthpiece of the Association Corporative des Étudiants en Médecine de Paris, a snare and a delusion. It will be remembered that only a few years ago a French senator, M Pomaret, produced a legislative scheme for the compulsory retirement of all doctors at the age of 65. In the preamble to the draft of his bill he was indiscreet enough to let fall the remark that the diagnoses of a doctor of 30 are much superior to those of a doctor of 65 Cornered over this dictum, so trite to the 30-year-old, so outrageously mendacious to the 65-year-old, he was persuaded in 1937 to adopt a less harsh attitude towards elderly doctors and to consent in principle to a scheme of voluntary retirement at 65 with a pension for any doctor who had subscribed substantially throughout his medical career. It is this modified scheme which M. Mordagne castigates in a recent number of *Presse Médicale* with breezy heartiness He pictures the emotions of a doctor forced to pay 4000 francs a year throughout his active professional life, but left free to dispense with any pension whatever when, at 65, he feels like remaining

OTTAWA CIVIC HOSPITAL

in harness indefinitely. The 65 year old doctor who retires on a pension of 20,000–25,000 francs would obtain this modest pension largely at the cost of his more active and hard working contemporaries.

UNITED STATES OF AMERICA

(FROM OUR OWN CORRESPONDENTS)

A DEBATE ON MEDICAL CARE

A LARGE attendance at the New York Academy of Medicine on Feb 27 rewarded the officers of the Medical Society of the County of New York for their efforts in arranging a symposium on the national health programme.

The first speaker, Dr Martha M Eliot, said that the Technical Committee on Medical Care, of which she is chairman, regarded the development of public health and preventive measures as fundamental, but at the same time no sharp line could be drawn between prevention of disease and care of the sick. The programme advocated for care of the "medically needy" aims at improving the quantity and quality of the attention received by these 40 million people. The objective of the more general programme, to include provision of medical care for normally self supporting persons, is to relieve such persons of the risk of unpredictable costs of sickness. This may be done either by health insurance or general taxation, or both, the choice is left to each of the several states.

Dr John P Peters, secretary of the Committee of Physicians for the Improvement of Medical Care Inc, and professor of medicine at Yale, pointed out that certain government departments had presented reports of the distribution of medical care which were shocking, especially to members of the medical profession which has taken pride in its philanthropy. Criticisms of these data had come chiefly from persons whose personal experience has been at variance with the government's statistics. The height of absurdity had been reached by those who have damned the figures dealing with health while citing those dealing with distribution of income, culled from the same sources by the same methods. Instead of meeting the challenge squarely, said Dr Peters, the medical organisation set out to prove the error of the national health survey by instituting an investigation of its own. This was conducted not by experts in sociological investigation but by means of questionnaires directed at random, by persons who had already declared their prejudice, to medical, welfare and philanthropic organisations. The replies gave only two types of information at the best the number of needy patients in the community that have received medical attention and the opinion of various organisations concerning the extent of unmet need. This was as irrelevant to the problem as was a spot map showing the distribution of hospitals in the United States to the question of adequate hospitalisation.

Organised medicine, realising that it cannot provide gratuitous care to the needy, had expressed its willingness to delegate the support of this large class to the government. It denied to the government, however, the right to make any provision for the marginal class immediately above the level of indigence and specifically prohibits compulsory health insurance. Instead, it suggested extension of voluntary insurance with certain limitations, in the face of extensive experience here and abroad proving that voluntary insurance, especially when thus limited, cannot solve the problem. Already plans had been proposed by medical societies for voluntary insurance programmes, but those that pretended to offer anything approaching adequate modern medicine demanded such high premiums that they cannot serve the fraction of the population for which they are especially intended.

The defects of the British panel system, in Dr Peters's opinion, can be attributed to the method for the distribution of medical care, there is no reason to believe that they are inherent in the system by which funds are raised.

"In our absorption in matters of finance the more important matter of assuring high quality care seems likely to escape attention. Thus far, all plans have been predicated on the pretension of the present system of free competition, either on a cash indemnity or a free for-service basis. Neither of these systems provides for anything but exposure of physicians to patients. Both are subject to the worst evils of the panel system, quite irrespective of the means by which they may be supported. Experience has proved that they do not particularly reward competence and decency, but afford peculiar opportunities for chicanery. They offer no incentive to the practitioner to avail himself of the assistance of specialists and consultants or to utilize all available medical facilities. They provide no machinery for the integration of the various branches of medicine, but these are the prime requisites of any system that is to supply modern medical care of high quality. All men are no longer equal in medicine and no one man can pretend to know or practice all branches of the healing art. Some means of securing coordination of medical services and more efficient utilization of time and resources is imperative."

Dr Peters believes that nation wide imposition of compulsory health insurance would probably be unwise at any time, and its immediate institution would almost certainly do harm. For certain areas, especially thinly populated rural regions, it may prove quite unsuitable. "Nevertheless, it would be most unfortunate to exclude it entirely from consideration, as the American Medical Association has demanded." He closed with a reminder that any programme for the expansion of medical care must include provisions for education and research.

Dr Samuel J Kopetzky chose for his subject the "intangible effects of compulsory health insurance in medical practice." He spoke, he said, from no love of controversy but to help stop the progressive deterioration of our doctors. If the burden of caring for the indigent were lifted from the doctor's shoulders he would gladly scale his fees to the financial ability of the wage earner. Dr Kopetzky also opposed health insurance because he has a great love for the career of a doctor. He who enters a sick room must be accompanied by "confidence." Once the devastating taxes of health insurance were imposed the government would do nothing to improve the quality of medical care. He drew attention to the many forums which our scientific societies and our academies of medicine provide, crowded even during the depression by eager physician students voluntarily endeavouring to better themselves. "Show me," said Dr Kopetzky, "anything like it in any country in the world where compulsory health insurance is in force. We are told that scientific medicine has 'crossed the Atlantic' and its headquarters are now in America. How much of this changed focus scientific medicine do we owe to the rep deterioration abroad, and to the lack of initiative and ambition of panel medical practice there*" There is, he pointed out, no incentive to become a better doctor, if income from practice is fixed by the insurance capitation fee A level of mediocrity is created, while dull routinised medical practice ensues. Health insurance does not enhance preventive medicine; it creates a medico-sociopolitical machine (Probably one must be American to realise what a horrible thing that is)

Dr Frederic E Elliott advocated "non-profit medical expense indemnity associations" Compulsory health insurance, socialised medicine, consumers' coöperatives, group health associations were, he said, all the same thing though the stage trappings are a little different Assistance which, on the other hand, deals exclusively with the financial aspect of medical service has many fundamental advantages The assisting agency stands behind the patient and not between him and the doctor. It retains the direct responsibility of one doctor to one patient It preserves freedom of choice by the patient Perpetuation of individual enterprise and freedom in the practice of medicine are, Dr. Elliott said, along with freedom of the press, freedom of religion and independence of the judiciary, fundamental to the democracy of life and the happiness and well-being of the American people

THE NATIONAL HEALTH BILL

On Feb 28 Senator Wagner introduced a bill which amends the Social Security Act and is to be cited as the National Health Act of 1939 This bill fulfils expectations in embodying the main recommendations of the Technical Committee on Medical Care The Social Security Act is amended so as to increase the federal subsidies available for work among mothers and children, to add to the provisions for the care of crippled children and provisions for medical care of children, and to provide additional funds for public-health work and for training personnel. Additional titles provide for grants to states for hospitals and public-health centres, for medical care "especially in rural areas and among individuals suffering from severe economic distress," and for temporary disability compensation when the disability results from sickness In the states the act will be largely administered or supervised by the state health department, but the state health officer will apparently have to meet the requirements of three separate federal departments at Washington and at least five separate federal advisory boards If standards for the qualifications of personnel and the quality of medical care provided are set up by these boards, he will have to deal with a maze of regulations and standards compared with which his present troubles will be trifling However, from the wording of the bill, it is not at all clear that the federal advisory board will have any function except to advise the administering agency how to maintain the merit system The wording of the bill seems to imply that the qualifications and the standards will be fixed by state administering agencies who will be advised by state advisory boards If so the federal advisory boards will have no important function and the standards of service will be as low as each of the several state agencies may prescribe

The amount of subsidy which each state will receive is governed by the population, the number of needy persons, the per-capita income of its residents, and its special health problems.

Thus far comment in the lay papers has been scarce. This may be because the administrative set-up is so complicated that lay writers are not able to understand it; or it may be that editors are waiting until the bill is debated on the floor of the senate.

IRELAND

(FROM OUR OWN CORRESPONDENT)

THE IRISH HOSPITALS COMMISSION

THE third general report of the Irish Hospitals Commission, covering the activities of 1937, was issued last week Up to the end of 1937 the total proceeds of the sweepstakes available for hospitals amounted to £11,576,849. Of this sum £2,762,501 was distributed directly to participating hospitals and £1,159,184 to the Minister for Local Government and Public Health for the use of hospitals under local authorities The sum of £7,704,700 is in the custody of the board of trustees

The report analyses the hospital bed accommodation of the country as a whole. It is stated that it is generally accepted that there should be 5 hospital beds per 1000 of the population for the accommodation of general medical, surgical, and obstetric cases It is suggested that in a country like Ireland, where there is a large rural and a small industrial population, so high a ratio may not be required. The actual ratio is 3 2 beds per 1000 of the population. The proportion in Dublin city and county is 6 2 per 1000, but the report hardly gives adequate weight to the fact that the hospitals in Dublin and Cork serve the greater part of the country For instance, 27 7 per cent of the patients treated in Dublin hospitals in 1936 came from other counties

Severe strictures are made on the administration of the voluntary hospitals and on their alleged lack of adequate control of expenditure The following passages summarise the commission's contentions —

> "It is apparent that the voluntary hospitals are becoming each year more dependent on the proceeds of sweepstakes . . . The yearly accounts of the hospitals indicate . . that in many of the hospitals there is a marked tendency to relax that ever-watchful supervision of spending which is so essential for the economic administration of such institutions.
>
> "It was to be expected that maintenance costs would rise when the hospitals were to a large extent relieved, by the phenomenal success of the sweepstakes, of the fears and uncertainties due to the precariousness of their financial position . . . It is when expenditure continues to ascend at what can only be termed an alarming rate that serious misgivings arise as to the justification for the increases. The Commission has frequently exhorted the governing bodies of the hospitals to exercise a rigid and efficient internal control of expenditure, so that, when and where increases occur, commensurately improved services may accrue.
>
> "It does not appear to the Commission that there has been any marked improvement in hospital administrative methods in the matter of supervision of expenditure.
>
> "The Commission has arrived at the conclusion that so long as the hospitals foresee that their maintenance deficits will be refunded out of the Hospital Trust Fund, and that there is not any immediate possibility of their having to finance such losses of themselves, thus long will expenditure continue on the upgrade."

The report suggests "that a limit may have to be put to hospital expenditure by some other means than dependency on the economic supervision within each hospital, if the latter cannot give the required results" Unless a "business like and conscientious control of expenditure" be established by the hospitals themselves, "an alternative method of dealing with the deficit question will have to be considered" In reply it has been pointed out that the commission has underrated the amount of leeway which had to be made up by most of the voluntary hospitals at the time the sweepstakes were established and the teadily increasing cost of treatment by modern ethods No evidence has been produced of a greater roportional increase of expenditure in the voluntary ospitals which receive grants from the sweepstakes unds than in those not receiving grants or than comparable hospitals in Great Britain or Northern reland

Some of the phrases used in the report are puzzling, uch as the reference to the possibility of the hospitals having to finance such losses *of themselves*," ignoring he fact that the hospitals have little resources utside what they have got or may get from the weepstakes funds It is not likely that the commission wishes the hospitals to be carried on as usiness concerns, but some of the expressions used onvey that suggestion Moreover the general tone f many paragraphs conveys the notion that the weepstakes funds are not the property of the hospitals but of the Minister or of some other authority, whereas the funds have been collected for the improvement and maintenance of the voluntary hospitals nd are held in trust for the voluntary hospitals The Minister has only to apportion the funds between everal voluntary hospitals Many of those interested in the voluntary hospitals read into the report a tendency to bring the hospitals under effective state control, and they are inclined to resent the lecturing tone apparent in such paragraphs as have been quoted above

The commission's opposition to the proposal to build a fever hospital for Dublin with 600 beds instead of the 500 in the original proposal is based on the view that it is cheaper to prevent contagion than to build and equip hospitals to treat fevers, and that, if adequate prevention of diphtheria were practised, the smaller number of beds would be sufficient The report gives a long statement of the commission's reasons for declining to recommend the proposals made for the creation of an orthopædic hospital of 150 beds in the neighbourhood of Dublin The commission's alternative is that, when the Dublin hospitals have been enlarged and improved, they will possess efficient orthopædic sections On the other hand, the commission's plan for dealing with chronic rheumatism is to concentrate the work in one central institute Many will fail to see why centralisation is opposed in one case and approved in the other Many will think too that the establishment of an elaborate treatment centre for chronic rheumatism is premature until much more research has been made into the causation and pathology of that disease

The commission justifiably emphasises the discrepancy between the number of available and of occupied beds in the several hospitals in certain months of the year and emphasis is also properly laid on improvement of hospital records

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations Each contributor is responsible for the section for a month, his name can be seen later in the half-yearly index

FROM A PART-TIME PROFESSOR

IV

THE assizes are now sitting in this city and the ewspaper reports serve to remind me that few pectacles are more calculated to bring the dignity, onesty and impartiality of our profession into disrepute than the expert evidence given by doctors in ourts of law In one case the witnesses on one side asserted that the victim was permanently and totally disabled, whilst those on the other side avowed that "if only the patient would pull himself together he would be able to return to his former occupation" t is clear that these two views are wholly irreconcilable, and it must be an unenviable task for both judge and jury to decide where lies the truth in these conflicting statements The public allege that doctors called as witnesses for one particular side are obliging enough to cast their evidence in the appropriate mould Moreover it is suggested that wealthy litigants bring witnesses of considerable renown into court who by the sheer weight of their reputation overwhelm the medical evidence on the poor litigant's side, and a miscarriage of justice follows I think it true that judges tend in some degree to discount the spectacular evidence brought in these circumstances, but even this is unfair, for it might well be the doctor of greatest renown who gives the fairest and most valuable opinion

It should not be beyond the wit of man to devise a means whereby the ends of justice could be more certainly attained The attempt made to secure this by having, in certain cases, a medical assessor sitting with the judge is helpful, but the assessor, too, has to listen to the conflicting evidence of medical witnesses, and his task is a difficult one, especially in disabilities of which he has no first hand experience I think the basis on which a scheme might be devised would be to have at each assize a panel of three eminent doctors, with power to coöpt specialists where the circumstances demand them This panel would examine the victims of accidents and report to the judge, answering, if they are able, such questions as—from what is the claimant suffering? is the disability permanent or temporary? if the latter, what is its probable duration? is it partial or complete? could the disability have been produced by the alleged accident? has the onset of an illness been precipitated by the accident or its progress accelerated thereby? and so forth The panel would intimate frankly to the judge that in certain cases the answer is, "we do not know," or "we might be able to answer this question in a year's time" These would provide the basis for legal argument and judgment The panel could be appointed by an approved body—e g, the Home Office The principle aimed at is the freeing of expert evidence from the taints of bias and omniscience One result of accepting this scheme would be a loss of income both to doctors and barristers but this is of less importance than a risk of loss of respect for professional integrity

• • •

The element of chance in shaping the consultant's destiny is I fear, insufficiently appreciated We are told year by year in the opening addresses at our medical schools that honesty, knowledge, wisdom, self-sacrifice, indeed all the higher moral qualities, are necessary attributes of the successful physician. Experience shows, however, that these are born to blush unseen, and waste their sweetness on the desert air, unless that chance occurs which opens the gateway to success. There is, for example, the vacancy on the hospital staff which occurs at the most opportune moment. But it is in practice that the lottery is especially marked. Almost every consultant can recall one particular case which started him on the road of success after long tarrying by the wayside. One of my friends who early achieved great fame as a physician frequently recalls that it was a rectal examination which established his reputation. The parents of a girl, alleged to be suffering from typhoid fever and pronounced gravely ill by a senior consultant, asked for a second consultant's opinion. My friend was called in. He listened carefully to the history and suspected an appendix abscess Abdominal examination was negative but he recalled the maxim, "if you don't put your finger in it, you put your foot in it" He confirmed his suspicion, for rectal examination revealed a pelvic abscess and he advised immediate drainage My friend insists that the patient's rapid recovery contributed less to his suddenly increased practice than the fact that the girl happened to be the only daughter of the captain of a famous golf club.

* * *

In the psychology of humour there is a phenomenon which would repay careful analysis. Not infrequently a man who has reached the highest rung of his professional ladder refers to himself with that mock solemnity which always raises a laugh as "a most distinguished ornament of his profession" We heard an example on the occasion of the presentation of his portrait to the president of the Royal College of Physicians Lord Macmillan, who presided, spoke, in the course of his sincere and beautifully phrased tribute to Dr. Hutchison, of the attraction of the Edinburgh medical school in the early 'nineties, admitting that it very nearly lured him, in which case "the law would have been deprived of one of its most distinguished judges" The spectacle of a distinguished judge (of exceptionally modest bearing), frankly avowing his worth might be regarded as adding weight to the view that the basis of all humour is incongruity.

Recently a young barrister, proposing a vote of thanks to a well-known physician for his address to a luncheon club, spoke in glowing terms of the speaker's persuasive eloquence and added, "Had our distinguished guest chosen the law as his profession there would have been many more men alive than there are today." The applause, quite free from irony, with which these words were greeted suggested that few had detected its *double entendre.*

* * *

Would it not be well for editors to indicate why they reject papers submitted to them for publication? A young and more than usually able research worker had recently a manuscript returned from the editorial committee of a quarterly journal with a note informing him simply that "the editors regret they are unable to accept your article for publication" Unversed in the ways of editors he was profoundly distressed and asked me if I would read his paper and tell him why it had been rejected. The explanation was immediately apparent, for though the paper was well written and embodied a real contribution to knowledge there were accompanying it six coloured plates! I advised him to write to the editor offering to pay for the reproduction of the coloured plates This he did and was asked to return the paper to the editor by the next post for publication in the next number! Much heartache might have been saved by a word of explanation

Those who have had papers rejected because their contents are out of accord with accepted knowledge will find solace in C. D. Broad's preface to "The Mind and its Place in Nature" (1925) There he suggests that he will doubtless be blamed by certain scientists for considering seriously the alleged facts investigated by Psychical Researchers. But he says "I am wholly impenitent about this The scientists in question seem to me to confuse the Author of Nature with the Editor of *Nature;* or at any rate to suppose that there can be no productions of the former which would not be accepted for publication by the latter. And I see no reason to believe this"

* * *

University handbooks are rarely the repositories of wit, at any rate of conscious wit One of the few examples I have met in my enforced reading of them is recalled by the fact that the smoke room of my club has just been redecorated with a somewhat ornate wallpaper. Commenting on the smallness and decoration of the bedrooms in Oxford colleges, the handbook to the University of Oxford states. ". . builders of old evidently believed that in a place to which one resorts in order to become unconscious of one's surroundings, the surroundings do not greatly matter; and the occupant, after one glance at the floral luxuriance of the wall-paper, will probably appreciate the advantages of unconsciousness."

THE LANCET 100 YEARS AGO

March 23, 1839, *p.* 3.

From a lecture by Dr. A. T. Thomson at University College Hospital.

. . If we reflect (said he) how long a period has elapsed since medicinal agents had been applied to, or rubbed upon, the entire skin, and how much benefit had been derived from counter-irritants, it was remarkable that no advantage had been taken of the skin, as an inlet to medicinal substances capable of acting generally upon the system, until the year 1823 MM Lembert and Lesieur, at that time, suggested what was termed the *endermic method* They had some followers among continental practitioners, but few in this country had ventured to administer medicines in this way, and it was not too broad an assertion to affirm that it had been most unjustifiably neglected. . The most common method of raising the cuticle was the application of a blister; and since the introduction of the acetum cantharidis, we possessed a very rapid and efficient means of blistering . .

One advantage of the endermic method over the internal administration of powerful narcotics was that of obtaining the full influence of the narcotic without any chemical change being produced upon it, such as must, necessarily, often occur when it was taken into the stomach: another was that the digestive function was left undisturbed: and a third was the power which we possessed of restraining the too great activity of the narcotic by the application of an exhausted cupping-glass over the part to which it had been applied . . The time required for the imbibition of a narcotic thus applied, in order to reach the capillaries, and to enter the circulation, was stated by Müller, in his "Elements of Physiology," to be less than a second; . . . In some of the instances in which finely-powdered hydrochlorate of morphia was sprinkled over a blistered surface, the influence of the narcotic was felt in the head in less than a minute.

THE AIR-RAID

A series of articles on medical organisation and surgical practice in air attack by
P H MITCHINER, C B E, T D, F R C S, *and* E M COWELL, D S O, T D, F R C S

XII—NURSING ORGANISATION AND NURSING OF CASUALTIES

FOR the same reason as the medical profession it has become necessary to organise the nursing profession To staff the vast hospital expansion that may be required to deal with air raid casualties, many ex nurses, at present not active in their profession, and large numbers of trained members of the voluntary aid societies will be necessary in addition to the existing nursing staff This large organisation will probably be controlled by the Ministry of Health

Personnel of Dressing-stations

Large dressing stations should be organised to hold 100 stretcher and 100 sitting cases The staff required is given in table I, it will be observed that a sister-in charge and three nurses are recommended The personnel will work in shifts of eight or twelve hours Some of the volunteers will be able to be on duty for only part of a shift If gas cases arrive in any numbers there will probably be fewer wounded, and the personnel must be rearranged accordingly

The sister-in-charge will work with the senior medical officer and give her orders to the duty nursing officers The duty officers will be commandants or other officers of the Order of St John or of the British Red Cross Society, one of either sex These officers will know their personnel and appoint leaders in each department The third duty officer performs the quartermaster's or steward's duties

In addition to the staff as scheduled, helpers will be required to work in the canteen, in the reception-room, and to look after the feeding of the personnel. Extra stretcher-bearers will be supplied from attached first aid parties The men auxiliaries attached to the office staff will act as runners Extra police will be required to direct incoming ambulances and guide the patients

When arrangements are working smoothly, the dressing station will be cleared rapidly If, however, there are so many casualties that the neighbouring hospitals become full at once, the dressing-stations must be prepared to hold their cases for 4–6 hours or even longer In some circumstances it may even become necessary to convert the dressing station into a *temporary casualty hospital*

Personnel of Casualty Hospitals

The hospitals set apart to deal with large numbers of wounded ("mass surgery centres") will require extra nurses and careful internal organisation. The executive staff will consist of (1) a senior medical officer with his deputy and the house governor, (2) a matron with her deputy, and (3) duty officers from the voluntary aid societies. These officers hand their details to the matron for work in the various departments Table II is given as a guide to the posting of the staff An allowance should be *made* for two shifts in the twenty-four hours It may be necessary to change over the details according to circumstances The exact proportion of male and female casualties is an unknown quantity, and the question of gas will not be settled until the actual raid. A responsible sister will be in charge of each ward, and her name should be marked up at the door for the information of the new and oft-changing voluntary personnel

Nursing of Air-raid Casualties

Members of the nursing profession who may be engaged in nursing air raid casualties should, in addition to an acquaintance with "gas," possess an *up to date* knowledge of air raid surgery

WORK IN SPECIAL DEPARTMENTS

In the *reception room* 250–700 units of antitetanic serum will be given to all wounded that have not previously received an injection There is, however, the danger of anaphylaxis, and, if there is a history of a recent previous dose, the serum must be given slowly with adrenaline at hand if untoward symptoms arise.

TABLE I—PERSONNEL OF DRESSING-STATION FOR 100 LYING AND 100 SITTING CASES

Department		Trained nurses (S.R.)	Duty officers	Clerks	Nursing orderlies		Auxiliaries		Cooks	Total voluntary personnel
					Men	Women	Men	Women		
Stretcher dump							1			1
Office		Sister i/c	2	2			3	2		9
Reception	Wounded			2	1	4	4	2		13
	Gas			1	1	1	1	1		5
Treatment		1			2	5		1		8
Evacuation	Lying				6	6	6	6		24
	Sitting				2	2	2	2		8
Resuscitation		1				2		2		4
Theatre		1			1	1		1		3
Q.M. department			1	1			1	2		5
Kitchen								5	2	7
Mortuary					1		2			3
—		4	3	6	14	21	20	21	2	90

Note—The lying cases will probably outnumber the sitting Of the latter 20 per cent will become stretcher cases after admission. Two to four police will be required for duty at the entrance to control crowd and to direct the ambulances and stretcher-bearers

TABLE II—PERSONNEL OF A CASUALTY HOSPITAL WITH 200 BEDS

Department		Accommodation	S R nurses	Duty officers	Clerks	Dispensers	Nursing orderlies		Auxiliaries		Cooks	Total voluntary personnel
							Men	Women	Men	Women		
Stretcher dump		..	.	.	.	.	.		1	.	.	1
Office			Matron	2	2	..	..		2	6	.	12
Reception	Wounded	40 L.	1	..	4		1	2	4	4	.	15
		20 S	.		.	..	.	1	..	1		2
	Gas	10 S		.		.	3	3	.	.	.	6
Treatment		8 L	1	.	..		.	.	.	.	..	
		20 S		.		.	1	1		1	.	3
Preoperation		30 L	2	.		.	1	3	1	3		8
Resuscitation		30 L.	4			.	2	5	1	2		10
Theatre (6 teams)		12 tables	7	1	2	.	6	6	12	6		33
Plaster team		6 tables	..	.	.	.	6	.	..	.	..	6
Evacuation	S	20	.	..	.		.	..	1	1	..	2
	L (men)	40	1	.	.	.	2	2	1	2	.	7
	L (women)	40	1	.	..		.	4		3	.	7
Serious surgical	Men	15	3		..	..	1	2	..			3
	Women	15	3		.		.	3	.	.	.	3
Gas		10	1	.		.	1	2		1	.	4
Q.M. department		.		1	1	1		.	1	2	.	6
„ kitchen		..	..	.	.		..	.	.	4	3	7
Personnel quarters		..	..			.		.	1	2	..	3
Mortuary			..		..		1		1	.	.	2
—			25	4	9	1	25	34	26	38	3	140

Note—The voluntary personnel is supernumerary to the existing nursing and domestic staff of the hospital. Police will be required for duty at the hospital entrances L and S =lying and sitting

In the *resuscitation ward* a great deal can be done for the apparently moribund. (For a description of wound shock see *Lancet*, Jan 28, p 228.) The nurse should be familiar with the various methods of *réchauffement* or warming the patient. Hot bottles should be placed near the large blood-vessels—i.e., over the groins and *not* at the feet. Electric cradles, hot-air stoves, and electric blankets all help. If the electric supply is cut off, a stretcher placed on trestles, with a shielded primus or beatrice stove underneath and the sides enclosed by hanging blankets, makes an excellent warming apparatus (fig. 1) Fluids must be given in large amounts, and the nurse should be able to instruct and supervise the voluntary personnel in giving saline by the rectum Blood-transfusion is given in this department, and the senior nurse should be able to introduce the needle into the vein and should understand the technique of the continuous-drip method Care should be taken in giving morphine hypodermically It is better to give small repeated doses than one large dose The dose should be indicated on the patient's card or marked on his forehead, together with the time of its administration.

THEATRE WORK

A hospital chosen for mass surgery will require six to eight surgical teams working simultaneously. Arrangements should be made to train a sufficient number of sisters and nurses in theatre duties, so that they are ready when their services are required. The theatre should be large enough to hold these teams—12–16 "twin tables"—and will be adapted from a ward or other building set aside for the purpose One sister or nurse is detailed for each team, and a sister-in-charge should be appointed for the theatre block, to supervise the provision and sterilising of dressings, instruments, gloves, overalls, and the supply of anæsthetics A duty officer will supervise the stretcher-bearers and see that the patients are brought in from the preoperation room without delay Special clerks will be on duty to make notes and complete the necessary records

EVACUATION WARDS

The majority of the patients will be moved on at an early date to another hospital and will spend their time in the evacuation wards on their stretchers and not in beds The new all-metal stretcher (fig 2) will be in common use, and the nurse must know how to keep the patient warm and comfortable The stretcher either rests on the floor on its runners or is supported on trestles 18 in. high. It is important to provide as much protection as possible to the patient's back Newspapers are good non-conductors and make a useful mattress. The blankets are folded as in the Thomas drill—by this method the effect of four blankets can be obtained when only three are actually used.

WORK IN THE SERIOUS SURGICAL WARDS

Air-raid wounds are all infected, and successful results depend on early operation. When primary excision of wounds is carried out, the wound may be sutured at once, but is generally left a few days fo-secondary suture In either case the dressing is left alone and a great deal of labour is saved Careful watching is required in looking for secondary hæmorrhage, the onset of sepsis, or perhaps gas gangrene or tetanus The Carrel Dakin method of wound treatment was used in the Great War but is unlikely to be used today Much time was saved when all the tubes were connected up by the appropriate fittings, so that the irrigating fluid was injected into one main tube only, whence it was distributed to the rest, without moving or disturbing the patient A self regulating reservoir was fitted in some wards which mechanically treated several patients simultaneously The treatment of burns with tannic acid has already been mentioned and may become very important in air raid nursing If the plaster method, now being carried out in Spain and mentioned in a previous article, is used, all wounds of limbs will come back from the theatre completely covered in plaster-of-paris The nurse should be familiar with the various methods of suspending limbs and know the different ways of making the patient comfortable The plaster may soon become blood stained and soaked with exuding fluids, but the patients' temperature comes down rapidly, and they do well Watch should be kept for a rising pulse, a dirty tongue, and other signs of toxæmia Such untoward symptoms will be immediately reported, and the plaster may have to be removed Otherwise the patients are left alone, and the plaster is only changed once a fortnight

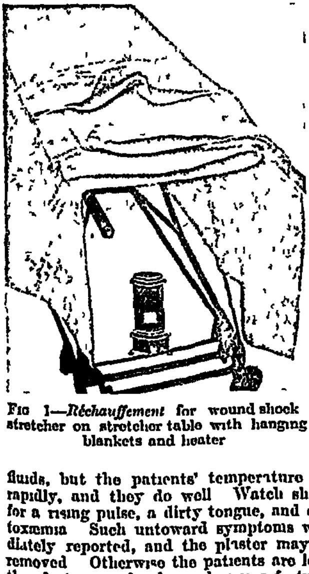


FIG 1—*Réchauffement* for wound shock stretcher on stretcher table with hanging blankets and heater

Abdominal wounds—When the patient comes to the ward from the theatre he should be put into the position of the greatest comfort, after the initial shock has passed off A strict Fowler's position may be asked for by the surgeon, but often it is enough to raise the head of the bed on blocks The administration of glucose saline per rectum is generally useful, the quantity retained by the patient often varying directly with the skill of the nurse It is usually safe to begin *small* mouth feeds of albumin water, sterile water, or glucose lemonade as soon as the patient recovers from the anæsthetic, even when stomach or bowel has been sutured Oral asepsis should always be aimed at The important complications to look for are signs of peritoneal irritation, vomiting, and ileus Internal hæmorrhage should not occur after operation, and shock will have been treated elsewhere A knowledge of the technique of continuous gastric siphonage and intravenous drip saline or blood transfusion may be instrumental in saving many lives The doctors will be so busy that they may depute this treatment to the sisters After twelve hours regular liquid feeds may be started Soft food may be given after the fourth day, and if all is well the patient may be sent on after the tenth day

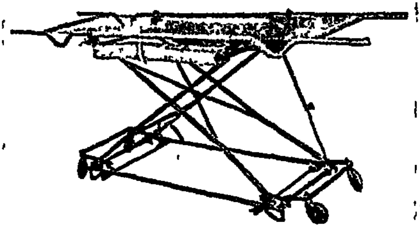


FIG 2—All metal stretcher on Tor stretcher table for use as dressing or operating table

Chest wounds—The temperature of the ward should be kept at about 60° F, and draughts must be avoided The posture of the patient is important, he is usually most comfortable if propped up In many cases an oxygen tent (fig 3) is most helpful, and the open top pattern is recommended The material used in its construction can be fireproofed, the open top allows of ready access in feeding, and the rest of the patient can be attended to without disturbing the concentration of oxygen

The chief complications to look for are surgical emphysema, pneumonia, or bronchitis A steam tent may relieve bronchitis The onset of infection in a hæmothorax is suggested by the aspect of the patient and a rise in pulse rate and temperature Pain and cough may be checked by heroin or morphine. These remarks apply both to patients who have been operated on and to those wounded who are treated medically It is important to avoid tight bandages after operation

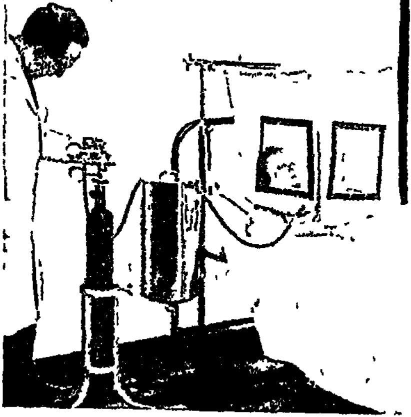


FIG. 3—Oxygen tent
(Tor Equipment Co, Croydon)

Cerebral and spinal cases call for the most careful nursing. Apart from the well-known difficulties of feeding, looking after the incontinence, and prevention of bed-sores, the question of posture is important. If the brain is injured and there is a gap in the vault of the skull, it is important to avoid doing anything that will increase cerebral congestion The best position for these patients is probably attained by raising the head of the bed on blocks Restlessness or delirium must be combated with sedatives and, at times, with a strong sheet. The onset of cerebral compression in a patient who has not undergone operation must be immediately reported and, if necessary, artificial respiration performed until the doctor arrives. *A soft running rapid pulse nearly* always means a fatal termination. Careful watch must always be kept on the bladder to avoid over-distension. The use of the triangular bandage to retain dressings in operated head cases is strongly recommended. Spinal cases are perhaps even more difficult then head cases. If the patient can be nursed on a bed with divided mattresses, much time and trouble are saved The retention of urine in these cases will probably be treated by the insertion of a self-retaining catheter in the bladder after suprapubic puncture

Wounds of the face and jaws—Every care should be taken to maintain asepsis of the oral and nasal cavities. Sprays of weak eusol or some other mild antiseptic should be provided and the patient encouraged to use them himself. Difficulty in breathing may suddenly arise, and instruments for tracheotomy or laryngotomy should be at hand, though generally all that is needed is to pull the tongue forwards Many surgeons leave a long suture, passed through the tongue, to enable this to be done readily by the nurse.

CONCLUDING REMARKS

Nursing under air-raid conditions calls for the highest qualities of well-sustained morale, good discipline, and earnest devotion. The controlling *authorities will try to arrange that the hospitals* set apart for air-raid surgery will be situated as far as possible from the zone of greatest danger. It will not be possible, however, to eliminate all risk entirely. Some bombs do not explode, and, even if they do, it is impossible for many hospitals to be hit at the same time. The slogan should be "Carry on and hope for the best." However anxious the nurse may be, she must never show her feelings but remain smiling and do all in her power to comfort and cheer her patients In Spain it was a point of honour that no-one showed any anxiety, and everybody in the hospital went about as though nothing unusual were happening.

PUBLIC HEALTH

End of "Puerperal Fever" Notification

IN 1926 the term "puerperal pyrexia" was introduced by the Ministry of Health to oust "puerperal fever" This, however, could not be done immediately without special legislation, because "puerperal fever" was already included among the diseases notifiable under the Infectious Diseases (Notifications) Acts, 1889–1899. The passing into law of the Public Health Act, 1936, *provided the opportunity of omitting* "puerperal fever" from the list of diseases notifiable by statute as distinct from those notifiable under regulations made by the Minister. The effect is that, except in London, to which the Public Health Act, 1936, does not apply, "puerperal fever" is no longer notifiable, but "puerperal pyrexia" remains notifiable under the Public Health (Notification of Puerperal Fever and Puerperal Pyrexia) Regulations, 1926. To clear up confusion the Minister has now issued new regulations to take the place of those of 1926 (London *still being excepted). They are called the Puerperal* Pyrexia Regulations, 1939, and will come into force on April 1. "Puerperal pyrexia," as now to be notified, will mean "any febrile condition occurring in a woman within 21 days after childbirth or miscarriage in which a temperature of 100 4° Fahrenheit (38° Centigrade) or more has been sustained during a period of 24 hours or has recurred during that period."

Industrial Protection of Eyes

To help employers bound by statutory regulations to provide protection for their employees' eyes a leaflet entitled "Protection Against Eye Accidents" has been issued, in which it is pointed out that in about 10 per cent. of the blind in this country the blindness is due to industrial injuries, and that over 7600 eye accidents were officially reported in 1936 under the Factory Acts. Since reportable accidents are those that have caused disablement for more than three days, the total of all industrial accidents to eyes is obviously much greater, perhaps 100,000 yearly. The main causes of such accidents are dust and small flying particles (as in metal-grinding and sand-blasting); larger flying objects (as in turning and in cutting rivets); splashing of molten metal and corrosive liquid (as in casting and in handling chemicals); and intense glare (as in oxyacetylene welding). Protective appliances are classified into fixed screens and portable screens, the latter including helmets, face-masks, visors, veils, and goggles Screens may contain windows of special optical glass to intercept harmful radiations and to reduce glare. One ingenious form, used in the inspection of glass furnaces, is held in position by biting with the teeth on a wooden peg When not in use it hangs from the workman's neck. Samples of many of these protective devices can be seen at the Home Office Industrial Museum, Horseferry Road, S W.1. The museum is open from 10 A M to 4 P M. on week-days, admission being free

Municipal Aid for a Voluntary Hospital

The Prince of Wales's Hospital, Plymouth, finding itself in difficult financial circumstances, lately appealed to the Plymouth city council for assistance. We are informed that the council has decided to make a grant of £3500 to the hospital for the year ending March 31, 1939, upon certain conditions, which include the following: (1) The question of the necessity for, and the amount of such financial assistance shall be subject to annual revision by the council. (2) The hospital board of management shall *not, without prior approval of the council, increase or* diminish accommodation or facilities provided for patients or staff so as to affect the financial position of the hospital (3) The representation of the council on the board of management of the hospital shall be three members of the council and the medical officer of health, the latter in an advisory capacity (4) The accounts of the hospital shall be submitted to the council in respect of each year during which a grant is made.

HOSPITALS IN EMERGENCY

THE SCHEME FOR LONDON

PLANS made for the care of air raid casualties in arge cities were outlined by the Ministry of Health t the end of last month[1] In London and other ng centres of population the casualty hospitals in he centre are to be affiliated with each other and vith casualty hospitals in outer areas to which the vounded can be rapidly evacuated

Further details for London have now been issued, ubject to modification, and the accompanying map shows approximately how affiliation is arranged n ten sectors radiating from the centre Each of these ectors contains voluntary and municipal hospitals of widely differing types, including the great teaching hospitals, local authority institutions, mental hospitals, specialised hospitals, and cottage hospitals Some of these institutions—e g, mental hospitals—will be converted from their present use to the care of casualties, and for this purpose will at once be cleared of their normal patients and "upgraded" to the status of casualty hospitals by the installation of additional apparatus and personnel Other hospitals, which could not be so upgraded, will be kept for convalescent cases, chronic cases and those needing inpatient treatment but no special facilities

It is proposed that the casualty hospitals near the centre of each sector should be used as far as possible for immediate treatment only, and that the injured should be transferred at the earliest opportunity from the centre to affiliated casualty base hospitals in the outer areas Thus in sector 7, St George's Hospital is affiliated to (among others) an advance base hospital at Staines in Middlesex (the public assistance institution) and a base hospital at Basingstoke in Hampshire (the Park Prewett Mental Hospital) Owing to the unpredictable nature of air attack, however, it might on occasion be necessary to give casualties initial treatment at an outlying hospital, and then to redistribute them among hospitals nearer the centre Elasticity and freedom of interchange between hospitals are the essence of the scheme, which is designed to distribute the weight of casualties falling suddenly at any given point It is intended that, as soon as an emergency threatens, equipment and staff will be redistributed among members of the group so as to use material and skill to the best advantage

The following lists show the principal casualty hospitals grouped according to sectors Many other institutions in each area will be used for minor casualties, convalescence, infectious diseases, and other purposes The name given above each list is that of the "group officer" appointed to represent the group The abbreviations used are H = Hospital P A I = Public Assistance Institution I D = Institution for Defectives L C C = London County Council

SECTOR 1 (ESSEX)

(Mr Russell Howard)

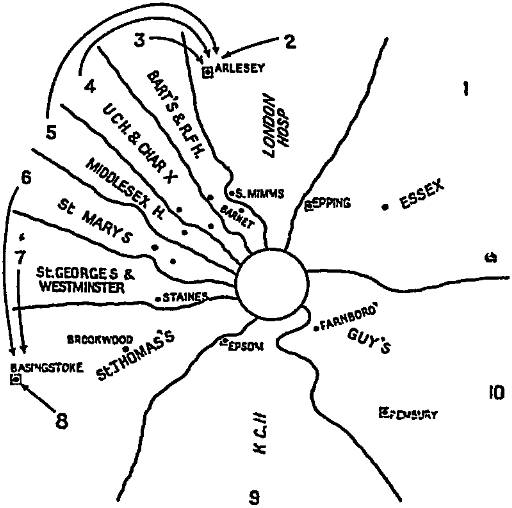
Australasian (Barnardo's) H, Barkingside
Connaught H, Walthamstow
East Ham Memorial H
King George H, Ilford
Oldchurch County H, Romford
Queen Mary's H, Stratford
St Mary's H, Plaistow
Seamen's H, Tilbury
Whipps Cross H, Walthamstow
Woodford Jubilee H
Barking H
Highwood H (L C C), Brentwood
Albert Dock H
Aldersbrook Children's Home, Snaresbrook
Sutton's Institution (auxiliary to Oldchurch), Hornchurch
West Ham H, Harold Wood
St John's P A I, Chelmsford
Colchester P A I
Black Notley Sanatorium, Braintree
Essex County H, Colchester
Chelmsford and Essex H
Southend Municipal H, Rochford
Southend District General H
Brentwood Mental H
Goodmayes Mental H
Runwell Mental H
Claybury Mental H (L C C)
Severalls Mental H

Advanced bases—Epping P A I, St Andrew's P.A.I., Billericay

SECTOR 2 (LONDON HOSPITAL)

(Mr Russell Howard)

London H
German H
Metropolitan H
Bethnal Green H (L C C)
London Chest H, Victoria Park
St Leonard's H (L C C)
St Peter's H (L C C)
Mile End H (L C C)
St Andrew's H (L C C)
London Jewish H
Poplar H
Princess Elizabeth of York H, Shadwell
St George in the East H (L C C)
Mildmay Mission H, Bethnal Green
Queen's H for Children, Hackney Road



Map showing approximate distribution of the ten sectors The black circles show the position of advance base hospitals, the circles in squares are the base hospitals

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[1] Emergency Hospital Organisation H M Stationery Office 6d See *Lancet* March 4 1939, p. 523 and March 18, p 650

SECTOR 2 (*continued*)

North Eastern H (L C C)
Eastern H (L C C).
Hackney H (L C C)
Prince of Wales H , Tottenham.
Enfield War Memorial H.
Enfield House P A I.
Chase Farm, Enfield
North Middlesex County H
Enfield I D.
Northern Fever H. (L.C C)
Bishops Stortford P A I
Bishops Stortford General H.
Hitchin, North Herts and South Beds H.
Chalkdell P A I , Hitchin.
Hertford County H.

Advanced base—South Mimms Sanatorium
Base hospital—Bedford Mental H , Arlesey.

SECTOR 3 (BART.'S AND ROYAL FREE)

(Sir Girling Ball and Mr. C. A. Joll)

St. Bartholomew's H.
Royal Free H
London Fever H
London Chest H , Victoria Park
St Mary's H. (L C.C), Islington
Highgate H (L C C)
Archway H (L C C)
Royal Northern H.
Hornsey Central H
Finchley Memorial H.
Finchley I D
Colney Hatch Mental H. (L C C)
Barnet Victoria H
St Albans, Oster H., P A I
Cell Barnes Mental H
Luton and Beds H.
Luton Poor Law Institution

Advanced bases—Wellhouse P A I , Shenley Mental H.
Base hospital—Bedford Mental H , Arlesey.

SECTOR 4 (U C H. AND CHARING CROSS)

(Dr W. J Pearson and Mr. Norman Lake)

University College H.
Charing Cross H.
National Temperance H.
Elizabeth Garrett Anderson H
Italian H
London Homœopathic H
H. of St John and St. Elizabeth
St Pancras H. (L.C.C.).
French H
Royal National Orthopædic H
H for Sick Children, Great Ormond Street.
Hampstead General H.
Hendon Cottage H
Hendon I.D
Manor House H , Golders Green
New End H. (L.C C.), Hampstead
North Western H. (L.C C)
Colindale H (L C C).
Redhill County H.
Watford Peace Memorial H.
West Herts H , Hemel Hempstead
Hemel Hempstead P.A I.
Stanborough Hydro, Watford.

Advanced bases—Watford P.A I ; Royal National Orthopædic H , Stanmore , Royal National Training College, Stanmore.
Base hospital—Bedford Mental H , Arlesey

SECTOR 5 (MIDDLESEX HOSPITAL)

(Dr. H. E. A Boldero)

Middlesex H
Paddington General H. (L C C)
Harrow General H.
Wembley General H
St Andrew's H , Dollis Hill
Willesden I D
Willesden General H.
Royal Bucks H , Aylesbury
Aylesbury P.A.I.

Advanced base—Mount Vernon H , Northwood.
Base hospital—Bedford Mental H , Arlesey.

SECTOR 6 (ST MARY'S)

(Sir Charles Wilson)

St Mary's H , Paddington.
Hammersmith H. (L C C)
Acton General H.
St Charles' H. (L C C)
Ealing I.D
St Vincent's Orthopædic H., Eastcote
Central Middlesex H , Willesden.
Amersham P.A I
High Wycombe Memorial H.
Hanwell Mental H. (L C C)

Advanced bases—Hillingdon County H., Hillingdon P A I ; Harefield Sanatorium
Base hospital—Park Prewett Mental H , Basingstoke

SECTOR 7 (ST. GEORGE'S AND WESTMINSTER)

(Mr. C H. S Frankau and Mr Rock Carling)

St. George's H.
Westminster H.
Western H (L C C)
Princess Beatrice H
St Stephen's H (L C.C)
St Mary Abbots H
St Luke's H
H for Diseases of Chest, Brompton
West London H
Fulham H.
Royal Masonic H
Hounslow General H.
Staines I D
South Middlesex I D
W. Middlesex County H , Isleworth
Isleworth P A I
Isleworth Casual Wards
Ealing General H.
Windsor P.A I.
King Edward VII H., Windsor
Slough P A I
Basingstoke P A.I
Maidenhead Voluntary H.
Maidenhead Institution.
Park Prewett Mental H , Basingstoke.

Advanced base.—Staines P A.I.

SECTOR 8 (ST THOMAS'S)

(Mr Max Page)

St Thomas's H.
Lambeth H (L C.C).
Battersea H
South Western H. (L C.C)
St John's H. (L C C), Clapham
Bolingbroke H.
St. James' H. (L C C), Balham
South London Women's H
Grove Hospital (L.C C.), Tooting Grove
Putney H
Queen Mary's H , Roehampton
Nelson H , Merton Park
Wimbledon General H
Kingston County H
Victoria H , Kingston
Star and Garter H , Richmond
Royal H , Richmond
Richmond P A I
Surbiton H
Wilson H , Mitcham.
Guildford Royal H
St Anthony's H , Cheam
Schiff Home, Cobham
Southern Orphanage, Woking
Sutton and Cheam General H
Guildford Institution.
Weybridge General H
Gordon Boys' Home, Woking.
Victoria H., Woking
Farnham Institution
St. Nicholas Orthopædic H , Pyrford.
Clandon Smallpox H.
Godalming Surrey County Sanatorium
King George V Sanatorium (L C C), Godalming
Wokingham P.A I
Heatherwood H P. (L C C), Ascot
Pinewood Sanatorium (L C C), Wokingham
Botleys Park Mental H , Chertsey.

Advanced base—Brookwood Mental H
Base hospital—Park Prewett Mental H , Basingstoke

SECTOR 9 (KING'S)

(Mr. John Hunter)

King's College H
St Giles H (L C C)
Dulwich H (L C C)
Norwood Children's H (L C C).
South Eastern Children's H , Sydenham.
Croydon General H
Mayday H , Croydon
Carshalton and District H.
Queen Mary's Children's H (L C C), Carshalton
Beckenham H
Bromley and District H.
Purley General H
Redhill County P.H H
Radcliffe Convalescent Home, Limpsfield
East Surrey H , Redhill
Epsom County P H H
Epsom P A I
Royal Blind School, Leatherhead
Surrey County H , Dorking
Dorking and District H
King Edward VII H, Haywards Heath
Cuckfield Institution.
Horsham Institution
Netherne Mental H
Haywards Heath Mental H

Base hospital—Horton Mental H , Epsom.

DOCTORS' LIBRARY.

SECTOR 10 (GUY'S)

(Prof T B Johnston)

Guy's H
St Olave's H (L C C)
Bermondsey Medical Mission
St John's H, Lewisham
Miller H, Greenwich
Lewisham H (L C C)
Dreadnought H, Greenwich
St Alfege's H, Greenwich
St Nicholas H (L C C) Plumstead
Brook H (L C C), Shooters Hill
Park H, Hither Green
Grove Park H (L C C)
Woolwich War Memorial H
South Eastern H (L C C)
Sevenoaks General H
Kent County Eye H, Maidstone
Preston Hall H, Maidstone
West Kent General H, Maidstone
Joyce Green H (L C C), Dartford
Orchard H (L C C), Dartford
Orpington P A I
Queen Mary's H (L C C), Sidcup
Dartford County H (L C C)
Livingstone H, Dartford
Gravesend and North Kent H
Chatham County H
St Bartholomew's H, Rochester
Kent and Sussex H, Tunbridge Wells
Tunbridge Wells Homœopathic H
Southern H (L C C), Dartford
David Solomons Home, Southborough
West Malling P A I
Bexley Mental H (L C C)
Barming Heath Mental H, Maidstone
Warlingham Mental H

Advanced base —Farnborough H Kent
Base hospital for the time being —Pembury County H near Tunbridge Wells

In a speech delivered at the Royal Free Hospital on Tuesday last Mr Walter Elliot is reported as saying that there would be no question of the Government taking over the voluntary hospitals in the event of war, and except for base and advance-base hospitals they would all continue so far as possible their civilian work The Ministry of Health would pay for casualties received and would also reimburse the hospitals for salaries paid for whole-time casualty work

L C C JUBILEE EXHIBITION

ONE of the ways in which the London County Council is celebrating its jubilee is by an exhibition held in the conference hall and 25 rooms of County Hall The exhibition was opened by Queen Mary on March 21, and will remain open until April 4

The hospitals and medical services exhibit (rooms 6 and 7) shows how rapidly these have grown since the council took over the hospitals of the boards of guardians and the Metropolitan Asylums Board in April, 1930 The council now controls 76 hospitals, general and special Over 100 doctors are engaged in the provision of medical relief, and every London school-child is examined at least four times while it is at school. The council also supervises all London midwives and provides medical aid in emergency, since the beginning of 1938 it has provided domiciliary midwifery and maternity nursing services It also maintains a large ambulance service The medical exhibit, besides calling attention to these important functions includes an illustration of the methods employed by the council's chemists in testing materials for sophistication and estimating the vitamin A content of food The pathological exhibit contains examples of the apparatus in use for blood-grouping and the testing of specimens, and charts explaining the various processes In the hospitals' section are shown a Sinclair apparatus for the treatment of fractures, a "Shropshire horse," an oxygen tent, the original and the latest Drinker respirators, and the "cuirass" positive pressure and Bragg Paul negative pressure respirators The Powers Samas accounting machine shows how bulk statistics are compiled by the various services a questionnaire card is punched in the appropriate places and the machine records numerically the data indicated by the holes The apparatus and methods used in the school medical service for correcting maladjustment of eyes and teeth occupy two tables, and the display of articles made for sale by tuberculous patients at Papworth and the Spero workshops is impressive The exhibition contains a great deal of the handwork done by various classes of persons under treatment and protection, such as adolescent cripples, mental patients, mental defectives, and blind persons, the variety and beauty of these products show the care and energy which the council devotes to the creative aspect of their treatment Some of the carpets, baskets, clothes and other things made by mental defectives are so attractive and well finished that it is incredible that they are not the products of highly intelligent craftsmen ' The mental health services (room 4) are represented by photographs of the various activities in the daily routine of the council's mental hospitals and a series of exhibits showing the treatment by induced malaria of general paralysis of the insane As a reminder of the distance that has been traversed in psychiatry during the last hundred years, some of the old strait jackets and other instruments of restraint are on view The exhibit of the nursing service (bay 4) in the conference hall contains some attractive models of well designed wards and of the latest and most comfortable nurses' quarters, and a series of photographs of the work and recreation of nurses in training The work on air raid precautions (room 11) is shown by many photographs These include a number of views of exploding bombs and burning buildings at Shanghai and of the evacuation of refugees from Barcelona The scheme of the council for taking young children out of London is fully illustrated, as are the protective measures which householders are recommended to use against gas One of the new trailer pumps stands in the middle of the room Three rooms are devoted to education, one of the most important and arduous of the council's activities Educational methods and the work of children are displayed in coloured plans, charts and pictures Demonstrations by infants in nursery schools and displays of physical training by scholars from all types of schools are being given during the days of the exhibition

The conference hall contains bays in which are grouped pictures, models and other exhibits illustrating the bridges and tunnels and the Woolwich ferry for which the council are responsible, the many street improvements which have been effected during the last fifty years, the parks and open spaces, the Green Belt, children's care, finance, and town planning This last exhibit includes a model and a plan of the scheme for developing the south bank of the Thames, and a model of the county hall and its new extension Other aspects of the council's work represented in the exhibition are public assistance, main drainage, public protective services (inspection of weights, measures, foodstuffs, petrol pumps and so forth) supplies for the council's institutions, fire fighting and smoke abatement The exhibits in all rooms are grouped in an attractive way, are full of colour, and express the great vigour and ingenuity of the council's officers

LETTERS TO THE EDITOR

INFECTION FROM DRESSINGS

SIR,—May I supplement what has already been said about the dangers of puerperal infection from spore-bearing anaerobes in sanitary pads? I am particularly concerned with *Bacillus welchii* septicæmia which, although rare, is more common than puerperal tetanus (I have seen four cases, all fulminating postabortal infections and three of them fatal, in the past two years) At first sight it may seem most likely that in such cases *B welchii* is a contaminant from the rectum, since the organism is a common inhabitant of the intestinal canal, whereas human carriers of tetanus bacilli are rare in this country But most clinical infections with *B. welchii* occur after abortion—22 of Hill's 30 cases were postabortal infections—and, again, in our yearly analysis of the bacteriology of puerperal sepsis at the North-Western Hospital we have found that *B. welchii* is recovered from the genital tract more often in postabortal than in puerperal cases (12 and 3 6 per cent) Now, since the chance of intestinal bacteria reaching the genital tract is probably less after abortion than in a full-time confinement, and since the sanitary pad is a common dressing for the unattended case of abortion, I suggest that *B. welchii* may often be derived from this extraneous source (In my limited experience *B welchii* has been recovered more frequently from sanitary pads than has *B. tetani* which, however, may be simulated by other terminal-sporing bacilli.) Evidence for or against an extraneous source might be got by examining the serological nature of the toxin produced by strains isolated from dressings and genital tract since intestinal strains almost always produce α toxin. I suggest, also, that in a suspected early case of *B. welchii* infection—jaundice and hæmoglobinuria are almost pathognomonic signs—sulphanilamide, anti-gas-gangrene serum and massive doses of alkali should be given to try to stem the infection and prevent blockage of the kidney tubules by lysed blood

I am, Sir, yours faithfully,

Frimley, March 17. R CRUICKSHANK.

INQUIRIES ABOUT HOSPITAL PATIENTS

SIR,—In using your columns to ventilate a criticism of a certain aspect of hospital administration I am very keen that such criticism should be limited to the point at issue I neither intend nor wish that anything more should be read into my complaint than is actually stated. The hospitals, both voluntary and municipal, give magnificent service to the patients; but regarding the patients' relatives there is room for considerable improvement

In my particular work either I or my staff are being continually asked by workers to telephone to hospitals about wives and children who are under treatment and concerning whom the worker is anxious Locally I find that information is given to inquirers courteously and with reasonable comprehensiveness; but the same does not apply in certain other big cities. Workers are expected to call at the hospital in person, and I think this shows a complete lack of understanding on the part of the hospital authorities It is very often impossible for a man who is working away from home or on shift or under a variety of difficult conditions to go and call personally regarding his wife or mother or other relative I know there are difficulties of giving information to possibly unauthorised persons, but some risk should be taken in this respect to meet a far greater domestic need. I do not like to hear of the worker who receives off-hand treatment from a hospital porter, or is told by some busy probationer that no information can be given, without any inquiry being made as to the need for the information.

Hospitals exist as a social service and the service to the patient is not the limit of their duty. If this matter was considered in its full implications I think that any reasonable person would admit the need for improvement and modification of existing methods On the whole it is far easier to get information from the voluntary hospitals than from certain municipal hospitals.

The time has come when hospital porters should be far more efficiently trained in the technique of courtesy in handling patients and their relatives I do not like being talked to about "the patient Jones" or "the man Smith." These things are of very great importance and through your columns I would ask all medical superintendents to look into this aspect of their work and see that a method of referring to people, which has long since been abandoned in the factory, shall not still be perpetuated in the hospital vestibule and outpatient department. Courtesy titles are omitted in reference to persons standing in the dock, and it is quite time that relatives attending certain hospitals should not be given the feeling that they are actually accused persons in a court of first instance.

I am, Sir, yours faithfully,

Nottingham, March 16 L. P. LOCKHART.

SIMPLE HERPES

SIR,—Herpes simplex is of common occurrence on the skin of the upper lip, especially near the lower margin, in children and young people during recovery from a "cold in the head," when this has been associated with a profuse watery discharge from the nose. As is pointed out in your leading article last week, permanent carriers of the virus have always the specific antibody in their serum and are subject to recurrent attacks of herpes, while those who are not carriers, and have no specific antibody in their blood, are not subject to these recurrent attacks.

The great majority of virus diseases are followed by a lasting immunity resulting from the persistence of antibody, often of high titre, in the blood, which may be reasonably attributed to the persistence of living virus as cellular inclusions, especially in reticulo endothelial tissue cells in spleen or liver Herpes simplex is one of the few exceptions to this general rule; in fact it appears that only those who possess circulating antibody, and are carriers of the virus, are susceptible to these recurrent attacks. I would suggest that a simple explanation can be given for this anomaly.

It is necessary for the prevention of virus infection that antibody should come into contact with a virus before it is included in a cell In the case of poliomyelitis the virus, during its passage from the surface of the olfactory mucous membrane to the central nervous system, is protected by its inclusion in a nerve-fibre, and poliomyelitis may develop although antibody is circulating freely in the blood The virus of herpes has been found in the saliva and conjunctival sac of healthy persons, and it is probable that it also persists as intracellular inclusions in the epithelial cells of the nasal mucous membrane of carriers, and should be demonstrable in the watery nasal discharge during a "cold in the head." During the rhinorrhœal stage, constant dripping of fluid from the nose over the upper lip might lead to maceration of the superficial horny layer of epithelium which might be rubbed off, exposing the deeper living epithelial cells to infection with the virus, with subsequent production of vesicles. Bedson (1934) found that direct inoculation of human herpetic vesicular fluid on to the pad of a guineapig is uniformly followed by the development of typical vesicles. Virus inoculated in this manner would not be exposed to the action of circulatory antibody before reaching its destination.

I am, Sir, yours faithfully,

Worthing, March 17 HERBERT H. BROWN

PRECANCEROUS CONDITIONS IN THE STOMACH

SIR,—Sir Arthur Hurst in the lecture published in your last two issues gives at length the promised evidence of the importance of achlorhydria as a precursor of gastric cancer, and cites an impressive list of publications. Since in these columns I have repeatedly declared that there is no longer any evidence at all in favour of this hypothesis, one or other of us must be guilty of exaggeration.

It is common ground that chronic irritation (specific or non specific) is a factor in the development of gastritis and cancer. The evidence is partly analogy, partly dubious statistics, partly histology, and partly the fact that the distribution of cancers in the stomach appears to coincide with the sites of irritation gastritis—i e, some two thirds originate from the non acid producing mucosa of the antrum pylori, and most of the remaining third comes either from the lesser curve or from the posterior wall just below the cardia or from the "waist" of the stomach. The antrum is the mixing chamber of the stomach and gets most wear and tear from peristalsis, while the other areas bear the brunt of swallowed irritants, as can be seen by the localisation of damage following corrosive poisoning. The degree of gastritis in these sites is difficult to estimate with the present popular type of flexible gastroscope, but post-mortem material fixed soon after death shows how rare it is, after the age of forty, for all of them to be even approximately healthy. Such inflammation does not cause achlorhydria or hypochlorhydria. On the contrary, gastrectomy specimens prove that a *hyper*chlorhydria is often present in cases of extreme localised gastritis, especially when the antrum is involved, while other experimental work on men and animals makes it improbable that the acid secretion can be permanently suppressed by superficial irritants. This is easy to understand if it is remembered that a fraction of the normal mucosa can produce a hyperchlorhydric response with most of the existing test meal techniques. So much for agreed facts.

Where Sir Arthur differs from, I believe, every other living gastro enterologist working on this problem, including those whom he cites, is in supposing that cancer does not arise from these localised areas of "physiological gastritis" unless and until some general process has destroyed the power of the rest of the mucosa to produce acid. Theoretically it is difficult to see why this should be so, and practically there is considerable evidence against it.[1] The burden of proof lies on Sir Arthur, but the only direct evidence which he gives to support his statements is two large series of pernicious anæmia patients (one unpublished) with a slightly increased incidence of gastric cancer, together with random observations of an association between the two diseases.

If Sir Arthur had given all the published series (Washburn,[2] &c.) it would be seen that whereas the death rate from gastric cancer is slightly raised for the first two or three years after the development of the anæmia, there after the proportion conforms with, or is slightly less than, expectation. The possibility or probability must therefore be accepted that in predisposed subjects even an early gastric cancer causes the pernicious anæmia picture, and a true estimate of the risk of secondary cancer can only be obtained by estimating its incidence in patients in whom the diagnosis of anæmia lies at least five years back. Since also 5–10 per cent. of pernicious anæmia patients show benign mucosal tumours, as compared with a general incidence in the autopsy room of 0 03–1 0 per cent. (Brown,[3] Haring[4]), and many of these polypi will in Hurst's opinion become malignant, it is unfair to ascribe the incidence of gastric cancer in pernicious anæmia entirely to the atrophy of the acid producing mucosa.

Finally, may I reiterate the practical importance of settling this point now, on the evidence available? If Sir Arthur is right, two thirds of gastric cancer arise in less than a fifth of persons, and this fifth can be discovered by using test-meals. Gastroscopists are therefore being tempted to call polyadenoma *en nappe* in achlorhydric stomachs an early cancer, and morbid histologists haven't always the confidence to say it isn't. Once we lose sight of the distinction between what is cancer and what isn't, we shall have a spate of unnecessary gastrectomies, pseudo-cancer cures and misleading statistics.

I am, Sir, yours faithfully,

DENYS JENNINGS

Oxford, March 18

VACCINES WITH CHEMOTHERAPY IN PNEUMONIA

SIR,—In your issue of March 11 the pathological aspects of the combined use of M & B 693 and vaccines in pneumonia are carefully investigated by Drs Maclean, Rogers and Fleming from St Mary's Hospital. One of their important conclusions is that "a strong case is made out for the combined use of vaccines and M & B 693 in all cases of pneumonia in man ... and that the initial doses of 693 should be large." The pneumococci are killed by anti bodies (increased by the vaccine), the 693 merely reduces their vitality.

Clinically, I can support this from material which happens now to be available. In pneumonia in children I have used 693 (though in timid doses) ever since its introduction, combined with Wynn's vaccine (used consistently for about fifteen years). But I did not use 693 in the full doses recommended by the makers till Jan 1, 1939. Since then I have treated 28 cases of pneumonia, all under five years of age—with one death in a child admitted in convulsions on the seventh day, too late for vaccine. The temperature nearly always subsided within three days. Clear cases of bronchitis were not thus treated; but in children it is often impossible to be sure of a diagnosis on admission. So it was felt to be much safer to treat cases thought to be pneumonia —perhaps erroneously—rather than to wait and see.

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[1] Jennings, D., *Lancet*, 1937, 2, 1101

[2] Washburn, R. N., and Rozendaal H. M., *Ann intern Med* 1938, 11, 2172

[3] Brown, M. R., *New Engl J Med* 1934, 210, 473

[4] Haring W., *Münch med. Wschr* 1935, 2, 1514

In these 28 cases I can state that (1) full doses of 693 seemed to do no harm except in causing mild *vomiting in* 2 cases which ceased when the drug was stopped; (2) in an extensive experience of Wynn's vaccine I have never seen the slightest evidence of bad effect and the mortality has been very low (? 5 per cent.) (the "negative phase" bugbear has been clinically invisible); (3) my impression is that 693 shortened the pneumonia. Antipneumococcal serum was never given, as in children it is much less applicable than vaccine owing to the lack of sputum for typing.

The doses used were · Wynn's vaccine (Evans Sons Lescher and Webb) $\frac{1}{3}$ c cm, $\frac{2}{3}$ c cm and 1 c cm. on the first, second and third days of admission, but not started later than the fourth day of pneumonia M. & B. 693 was given 4-hourly. under 6 months $\frac{1}{4}$ tablet, under 2 years $\frac{1}{2}$ tablet, under 5 years $\frac{3}{4}$ tablet—reduced to 6-hourly after a few days without fever. The $\frac{1}{2}$ gramme tablets were crushed.

Thanks are due to Dr. W. M. Davidson, my house-physician, for extracting these facts and figures.

I am, Sir, yours faithfully,
F. C. EVE

Royal Infirmary, Hull, March 20

STORED BLOOD FOR TRANSFUSION

SIR,—The use of stored blood in two carefully observed series of transfusions is recorded in your issue of Feb 18 Unfortunately the writers may in some measure have defeated their own object by over-emphasising the risk of infection, since it is just this bogy which has hitherto prevented the extended use of the method

In this hospital we have used stored blood as a routine for nearly four years, and besides adding greatly to the convenience of our donors and ourselves it has undoubtedly saved a number of lives The blood has been collected into the open neck of a bottle of 3 8 per cent. citrate. Within the limits of this method exposure to the atmosphere is avoided, but no exceptional precautions have been taken. The blood has been stored at 4° C for periods up to three weeks before use We have now carried out over 300 transfusions in this way and neither from the appearance of the blood nor from its effect on the patient has there ever been any reason to suspect contamination. Sterility tests have been carried out occasionally, but no organisms have grown

The use of a closed method for collection, and I H T solution as a preservative, are improvements to which I have been recently converted, and are to be strongly recommended With such improved technique there need not be the slightest anxiety about contamination, and sterility tests are quite unnecessary. The method will undoubtedly come into general use

I am, Sir, yours faithfully,
R. VAUGHAN FACEY.

Royal Victoria and West Hants Hospital,
Bournemouth, March 18.

MENTAL NURSING

SIR,—Dr. Kimber, in your issue of March 11, brings into prominence an urgent problem regarding the training of mental nurses The topsy-turvy order in which the probationer nurse is officially expected to acquire her knowledge of nursing demands early reform. It is entirely illogical that the preliminary examination, for which she works during her first twelve months of training, should consist of anatomy and physiology, accidents and emergencies, hygiene and some elementary general nursing, to the *total exclusion* of anything relating to the management of psychiatric patients It is true that in the Royal Medico-Psychological Association's syllabus for the preliminary examination there is a section on the "general duties of nurses in a mental hospital," but in the association's handbook a bare twenty pages are apportioned to this subject, only two of which are devoted to consideration of "the relation of nurse to patient"

I am not qualified to express an opinion as to whether it is practical politics to prevail on the General Nursing Council at the present time to include an elementary course in normal psychology in their preliminary examination (which is taken by probationer nurses in general and mental training alike), and I doubt whether such a course would be of very much value to either the general or the mental probationer; but in my opinion a more practical step would be for the Royal Medico Psychological Association to insist on a short course of lectures on how to understand and handle different types of psychiatric patients, to be taken during the first three months of training for their diploma. The General Nursing Council should then be encouraged to follow this lead by making it compulsory that those candidates intending to qualify as mental nurses should receive a similar course of lectures before taking their preliminary examination

I am, Sir, yours faithfully,
FRANCIS PILKINGTON

Maudsley Hospital, S E.5, March 21

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED MARCH 11, 1939

Notifications.—The following cases of infectious disease were notified during the week · Smallpox, 0; scarlet fever, 1679; diphtheria, 1044 · enteric fever, 12 (29 "expected"); pneumonia (primary or influenzal), 1396; puerperal pyrexia, 198; cerebro spinal fever, 48; acute poliomyelitis, 3, acute polio-encephalitis, 1; encephalitis lethargica, 1, dysentery, 61; ophthalmia neonatorum, 96. No case of cholera, plague or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on March 17 was 3338, which included. Scarlet fever, 666, diphtheria, 750 (carriers, 46); measles, 6; whooping-cough, 880, puerperal fever, 11 mothers (plus 5 babies), encephalitis lethargica, 300, poliomyelitis, 2 At St Margaret's Hospital there were 26 babies (plus 15 mothers) with ophthalmia neonatorum

Deaths.—In 126 great towns, including London, there was no death from smallpox or from enteric fever, 7 (0) from measles, 2 (0) from scarlet fever, 18 (4) from whooping-cough, 24 (2) from diphtheria. 44 (8) *from diarrhœa and enteritis* under two years. and 261 (75) from influenza. The figures in parentheses are those for London itself

The number of deaths attributed to influenza has fallen, the totals for this week and the ten preceding weeks (working backwards) *being 261, 284, 285, 255, 265, 210, 173, 223, 214,* 144, 89 Of these 261 deaths 167 were reported from the south-eastern area, Portsmouth contributing 8, Luton 7, Southend-on Sea 6, Croydon, Willesden, and Southampton each 5, 51 were reported from the northern area, Sheffield contributing 7 and Leeds 6, 28 from the midland area, Birmingham contributing 6 and Bristol 5; and 14 from Wales, Rhondda contributing 7 and Cardiff 5 Fatal cases of diphtheria were scattered over 17 great towns, South Shields reporting 3

The number of stillbirths notified during the week was 265 (corresponding to a rate of 41 per 1000 total births), including 54 in London.

OBITUARY

JAMES LEONARD JOYCE

M.B. CAMB., F.R.C.S.

Mr. Leonard Joyce, the Reading surgeon, died of angina pectoris on March 18 at the age of 57. He was the son of Prebendary J. B. Joyce and was born at Coreley, Salop, in 1882. He was educated at Shrewsbury School and King's College, Cambridge, where he took first class honours in the natural sciences tripos in 1904, and did his clinical work at St. Bartholomew's Hospital. He qualified in 1907, and after doing house appointments at St. Bart's passed his final F.R.C.S. in 1909. He then went into partnership with J. B. Hurry and M. W. Coleman in Reading, and his experience as a general practitioner no doubt contributed to his success as a general surgeon. He was appointed surgical registrar to the Royal Berkshire Hospital in 1913, and during the war was in charge of the special surgical section of the Reading War Hospital, where he had unusual opportunities to develop his surgical bent.

After the war Joyce gave up general practice and devoted himself to surgery, being appointed to the staff of the Wingfield Orthopædic Hospital at Oxford, the War Memorial Hospital at Henley and other hospitals in the neighbourhood. His reputation was not merely local. Everyone who came into contact with him recognised his outstanding ability. His outlook was that of scientific observer and a wise physician and he undertook an operation only after most careful consideration of all aspects of the case. He made a first class consultant, for he combined wide surgical knowledge and a high degree of technical skill with a quiet and unassuming self confidence and unlimited patience. His interests—and publications—ranged from plastic to abdominal surgery and he adapted a follow up system which he had devised originally for cases of malignant disease, to provide accessible records of all his patients. He described this system in the *Royal Berkshire Hospital Reports* for 1933 and noted that he had managed to keep in touch with all but a very few cases. He was one of the editorial committee of this publication and contributed to each of its 4 issues one or more articles of high quality—the last, in 1937, being a review of the results of the combination of surgery and X rays in the treatment of carcinoma of the breast at different stages.

A 'son of the manse," Joyce was an ardent churchman, a chorister, churchwarden and bell ringer, and he also took a special interest in the development and welfare of Reading University. He was a keen and skilful fisherman. 'His death," writes Prof. G. R. Girdlestone, "is a great loss to surgery and a far greater and more personal loss to those who were fortunate enough to know him well. Leonard Joyce and I saw a good deal of each other during 1918 and 1919 when he was in charge of the war orthopædic surgery in Reading, and I of that in Oxford. As time passed our friendship grew deeper and happier, though we were both too busy to see one another often apart from the meetings of the Association of Surgeons and the British Orthopædic Association. As a surgeon he was of outstanding quality, great in technique and accomplishment, but outstanding on account of his character, his care and conscientiousness, and his beautifully balanced judgment. He was never distracted by false values. He was the truest and most modest of men. I have known him as his colleague, as his grateful patient, and I am thankful to say as his friend for twenty years. He was always the same, a charming companion and the best friend a man could have."

Mr. Leonard Joyce married Miss Alice Whitefoord and his wife survives him.

CHARLES ALEXANDER CLARK

L.D.S.

Mr. Charles Clark, who died on March 11 at the age of 78, was the pioneer of dental radiography in this country, and he demonstrated his first radiogram of the teeth to the Odontological Society of London in 1896, within a year of Röntgen's discovery of X rays. He was born in London in 1860, and was educated at Merchant Taylors' School and the National Dental Hospital, where he distinguished himself as a student. For some years he practised dental surgery in London, but as the demand for his services as a radiologist grew he gradually gave up general practice. In the early days he made most of his own apparatus, and before films were invented prepared his own photographic plates. Many of the devices he introduced are still in common use.

[Russell & Sons

During the war he acted as radiologist to various military hospitals and also found time to serve as a special constable. After the war the general recognition of the possibilities of apical dental infection led to a great increase in the use of dental radiography and Clark's time was kept fully occupied by both dentists and doctors in search of infective foci. By then he was taking dental radiograms of a technical excellence that has never been surpassed. When the Royal Dental Hospital formed an X ray department Clark became its first radiologist. He was president of the metropolitan branch of the British Dental Association in 1919, and he was a member of the council of the Röntgen Society, vice president of the odontological section of the Royal Society of Medicine and in 1931 président d'honneur of the radiology section of the International Dental Congress in Paris.

For some years Charles Clark suffered from asthma and a weak heart, but his capacity for work was astounding in spite of this handicap. His opinion on a radiogram was exceptionally sound, though he took care never to trespass on the province of the dental surgeon by advising extraction. It was as a technician however that he excelled, and his work helped to hasten the evolution of the specialised technique of dental radiography. He was a shy and sensitive man, modest, cheerful and scrupulously honest. He was most generous in giving his colleagues the benefit of his skill and he must have possessed films of the mouth of the majority of his professional neighbours. Ill health made him give up active work ten years ago.

Mr. Charles Clark married twice. A daughter by his first wife is now a medical officer at Singapore, and he also leaves a son and daughter by his second wife

ROBERT GIBSON

M D EDIN.

Dr. Gibson, lecturer in skin diseases at Manchester University, died at his home in Manchester on March 17. He was born at Port William, Wigtownshire, in 1876 and came of a seafaring family; it may be this which gave him that strength of character which was his most obvious quality. He was educated at George Watson's College and Edinburgh University and graduated in 1896 after a distinguished undergraduate career After a residential appointment in Carlisle he went east to practise in Hong-Kong for four years On his return he held several appointments in London and Liverpool and thereafter conducted a successful general practice in Manchester until just before the war. He had the misfortune then to lose an arm as the result of blood-poisoning contracted during an operation. This disaster led him to desert general practice for specialisation in diseases of the skin.

In 1917 Gibson became assistant medical officer at the Skin Hospital, Manchester, and later he was appointed honorary physician, a post which he held up to the time of his death He was also honorary dermatological physician at the Salford Royal Hospital and at the municipal hospitals of Crumpsall and Booth Hall. As a consultant he attained the highest reputation both for his professional skill and his personal qualities, and he became president of the North of England Dermatological Society and of the Manchester Medico-Ethical Association, and vice-president and secretary of the Manchester Medical Society. He took a personal interest in all his patients and spared no pains to see their disabilities from their own point of view. He was especially skilled and experienced in dealing with industrial diseases of the skin and was held in high repute by judges and medical assessors of the courts for the clear and reliable manner in which he presented his evidence in compensation cases The loss of his arm seemed only to bring out more fully the happiness of his disposition and his courage in overcoming difficulties In golf, in trout fishing, and in sailing he was an adept, and his companionship in these fields of sport added unfailingly to the zest of any gathering.

HENRY SIMPSON LUNN

KT, M.D. DUBL., J P.

IN Sir Henry Lunn's long and varied and almost romantic life medicine was scarcely more than an occasional interest. Besides being a doctor he was an organiser of travel, and it was this that made his name famous. But his tours and hotels and conferences, like his medical degrees, were only an unconventional development from his original career in the Methodist ministry; and unity in and through religion preoccupied his mind to the end.

He was born at Horncastle in Lincolnshire in 1859, the son of Henry Lunn of West Ashby House. From the local grammar school he went to Headingley College to train as a minister, but at 24 he decided to qualify as a medical missionary In four years at Trinity College, Dublin, he graduated in arts and medicine, served as secretary of the Historical Society, and helped to found the Irish Protestant Home Rule Association. In 1887 he married Ethel, eldest daughter of the late Canon Moore, and soon afterwards Dr. and Mrs Lunn set out for India. After a single year, however, he had to be invalided home, and on returning to England it was no longer medical practice that engaged him Still a Methodist minister, he started religious work at the Regent Street Polytechnic and also took to journalism. In 1892 he began to arrange reunion conferences—"ecclesiastical picnics" as they were unsympathetically called—at Grindelwald in Switzerland, and in so doing he discovered so great a talent for organising such affairs that he was led to give his whole time to the creation of travel agencies Nevertheless the success of his enterprises did not prevent his editing (and largely maintaining) a magazine, the *Review of the Churches*—dedicated to the reunion of the Churches and to international peace—which ran from 1891 to 1897 and was revived, again under his editorship, from 1923 to 1930. Nor did it prevent his earning, by brave utterances as a Liberal candidate and otherwise, the label of pro-Boer and, before the late war, pro-German. At this time he particularly cultivated contacts with Germany, and dispatched "good-will tours" thither and elsewhere An obituary notice in one of our contemporaries speaks of his being misled into the belief that friendly personal relations between the intelligentsia of various countries could avail against the forces of military and economic ambition; but perhaps the idealist saw further than his critics

Lunn had been knighted in 1910 for public services, and after the war, as before it, his leisure was filled with public objects, ranging from the preservation of Stratford-on-Avon to the support of the League of Nations Union (for which he lectured on a world tour) and the convening of the Mürren conference of bishops, clergy, and Nonconformists in 1923 He wrote books on missions, books of spiritual meditation and books on politics, as well as accounts of his life and travels, and he took pains over the disposal of his fortune, during his lifetime, to the causes he cared for most. Meanwhile his interests had branched out in many semi-commercial directions, from the founding of the Hellenic Travellers Club, with Lord Bryce, in 1906, to the revival of a northern spa, the development of sanatoria, and the promotion of winter sports Dr. Fortescue Fox, writing of the good he did in such ways, says: "It was Sir Henry Lunn who showed the way to my generation to delightful and quite simple holidays in winter. In the early days of this century the British instinct for travel more often than not went unsatisfied. It was an immense service to young students and their friends to make such a dream a possible reality. All over the country there are many people who owe to these pioneers of travel the experience of a lifelong stimulus and mental enlargement. Social habits have been modified, fixed holiday seasons have been 'staggered' into the winter, and ideal vacations have been made available, when most needed, to city-dwellers and to medical men and others with arduous work in the summer. With this happy gift for organisation Lunn had also deeper qualities—a love of nature, a lifelong feeling of religion, and a feeling also for the true health resort, including so many influences making for happiness and health. It was characteristic of him that, in spite of a grave malady, he should persevere till his eightieth year and be journeying when he died."

Sir Henry Lunn's final illness began at Toulon where he was about to welcome members of the Hellenic Travellers Club—many of them medical—on a visit to Greece. He died in London on Saturday last, and Lady Lunn, with whom he celebrated his golden wedding in 1937, survives him with three sons

PARLIAMENTARY INTELLIGENCE

ON THE FLOOR OF THE HOUSE

BY MEDICUS, M P

THE work of the House of Commons during the last week has been carried on to the clank of mechanised armies marching across Europe, to the roar of aeroplanes demonstrating over Prague, and to the weeping of a defeated nation And appropriately enough our considerations have been largely of armed forces and of defence preparations Mr Shakespeare, speaking for the Admiralty, told us of the power wielded by the Navy and of its ability to meet any probable combination of powers and to keep the Mediterranean route open in time of war Sir John Anderson spoke of the early introduction of a bill to deal with Civil Defence and said that he prefers this expression to the alternative Passive Defence because it is liable to be so very active In this bill the duties of employers to provide protection for their workers will be more clearly defined than at present and every business, whether industrial, commercial or other which employs more than 50 persons will have the duty imposed upon it to provide protection of certain kinds Employers of numbers of 50 or below do not escape their obligation to provide protection but their relation to the Government scheme is not the same

The bill when introduced will provide for financial assistance to employers in various ways—it may be in the form of financial help which will be equivalent to remission of income tax at standard rate or, in certain circumstances, to assistance at a higher figure Details must await the bill and its discussion and possible amendment, but it is certain that the duty exists and that financial assistance in some form will be given Sir John Anderson specifically stated that such financial relief would be retrospective There is however a time limit to the granting of financial aid to the employer and this takes the form of the fixing of a date in the bill on or before which work on protective schemes must be begun if financial help is to be obtained The possibility of amendment remains, but it can only be an amendment to increase the financial aid

Behind the scenes of A R P the tremendous surge of work goes on in hospital and casualty organisation, but it is worthy of note that this will depend for its efficiency and its success less on legislation or even local government administration than on the organisation of the medical profession itself and particularly on the organisation of the great teaching hospitals In military language the medical profession supplies a reserve of civilian personnel ready and largely trained for their work and up to 93 per cent of their ration strength Another aspect of A R P which is being very carefully studied is that of the problem of shelter protection for the civilian population and this is by no means insoluble Taking the country as a whole there are two main divisions—first the urban areas and second the rural areas into which children and surplus population will be evacuated in time of war The rural areas do not require deep-shelter protection and what other protection they may require is a matter for decision in the counties concerned and must depend on local conditions In the urban areas it is calculated that one third of the population will leave in war time for the evacuation areas so that the problem can be expressed in numbers of people and numbers of urban areas Even in urban areas the likelihood of air attack varies very much from place to place Apart from London which is the most difficult case it *is probable that* many urban areas will only suffer from sporadic attacks and that the heaviest types of bombs will not be used The danger to be expected from bombing is severely limited by the physical conditions and perhaps the psychological conditions under which the bombing squadron must work Present anti aircraft defence is so far good as to compel any invader to fly at a very great height from which accurate aiming of bombs—especially in view of the high speed of the modern bomber—is to say the least very difficult

Any immediate inference as to the effect of bombing in Great Britain derived from bombing in Spain or even in China is of very dubious value *In Spain* owing to the very weak anti aircraft *defence the* attacking bomber was able as a rule to fly at a height chosen by himself He often flew long distances at a low altitude and the frequent history of machine-gunning of armies or civilian refugees from the air shows how low this was There was this low flying and machine gunning of civilians, and also by the way of cattle in the fields, at Guernica in the Basque country at an earlier period of the war and of the refugees from the defeat of the Republicans in Catalonia quite recently Any invading bomber *attempting* such tactics over Great Britain would have to belong to a suicide squadron.

It is not possible to know how an air attack would develop in detail, but it is certain that there are some important objectives such as docks, large armament works, central power stations and the like which must at all costs be defended adequately and *their* work continued

The logical point of departure in considering shelter protection is to note (*a*) those industries or *activities* which must be maintained in full working activity, (*b*) their location, and (*c*) to give 100 per cent protection to these industries *and activities* and to the locality in which they are situated *so that* the total working population there, including *those engaged* in supplying the food and other needs of the workers, shall be as safe as war conditions allow *It is doubtful* if the very large air raid shelters sometimes proposed—some have been suggested to hold up to 7000—are reasonably safe however deep underground Such a large shelter in a town must drain, as it were, a considerable area of streets, squares, and apartment buildings Whether under conditions of air attack at night in complete darkness all of the people *scheduled for* such a shelter would arrive at the entrance *or* whether twice that number would arrive could *only* be ascertained by experience And the experiment might prove to be excessively costly in life and suffering If a shelter is 3, 4, or 5 *minutes'* walk away in daylight it might easily be 15 to 30 *minutes* away at night during an air attack In areas liable to attack by large bombs, and this is a military matter which can be estimated, deep shelters will be required, but they should be comparatively *small, holding 50 to* 100 only Outside the areas of *special danger* many towns will not be liable to attack except by medium sized bombs for which suitable prot*ection can be* given more easily than for the large bombs

It is reasonable to divide *Great Britain from* the point of view of deep-shelter protection *into* four zones—first the rural evacuation areas in which it is not *required, second* the dangerous areas (docks, power stations, &c) *in which 100* per cent protection is required against very heavy bombs, third urban areas adjacent to the dangerous areas in which less deep protection will suffice, and fourth urban residential areas pure and simple in which the shelter protection needed is still less but where it is still required. In a "total" war as any war today must be the civilian is just as much on the field of battle as the sailor, soldier or airman and the activity of civilian production just as necessary if we are to be successful in war. The defence of the civilian worker must be looked at from this point of view; on the adequate protection of the civilian in the dangerous areas the issue of a war may well turn. The civilian will need just as much protection as do the armed forces.

In a world of violence it is pleasant to turn even to such a subject as the Criminal Justice Bill. The point of controversy on the committee has been the question of flogging. Much legal and medical opinion is against flogging and Sir Samuel Hoare, the Home Secretary, is apparently determined on its abolition as a normal punishment. On the other hand a large number of Government supporters are in favour of the retention of flogging. If the Government persist in their determination to abolish flogging it will be an interesting example of the straining of party loyalty under the pressure of the party whip. The dilemma is, for the detached spectator, an interesting one, for, if some Conservatives opposed the abolition of flogging and it was carried by the help of the Labour and Liberal Parties, the Conservatives and the Conservative National Liberals would have a lot of explaining to do to their constituents. And the flogging question is one of difficulty because its consideration lacks scientific precision. Are the pro- and anti-floggers in favour of their views for the sake of society, for the sake of the criminal, or is there something else?

FROM THE PRESS GALLERY

The Cancer Bill

In the House of Lords on March 15 the debate was resumed on the motion for the second reading of the Cancer Bill, and on Lord Balfour of Burleigh's amendment expressing regret that the bill did not contain a provision for increased research into the cause and treatment of the disease.

The Earl of **Donoughmore** said that at this moment out of four cases of cancer that might benefit by treatment only one was receiving treatment. He hoped that the sum of £700,000, which had been mentioned, was not going to be reduced and switched over to research. If any more money was to be devoted to research it should be additional to that provided under this bill. Lord Donoughmore quoted figures from a statistical report of the National Radium Commission issued in 1937 to support his view that the estimate of the life of a cancer patient as eighteen months given by Lord Balfour of Burleigh was much too pessimistic. There had been a definite improvement and increase of knowledge in the treatment of cancer. There was too much working in watertight compartments. Those engaged in research were not sufficiently in touch with the clinicians, and vice versa, and there was not always cooperation among those treating the disease. The ideal system of treatment was where every case suspected of malignant disease was seen at once by a team of workers. One of the most important points in the bill was the power given to local authorities to pay the expenses of patients, and even of a companion, in order that they might travel to centres where treatment was organised. Lord Donoughmore wished they could envisage a more organised system for the training of radiotherapists. It was dangerous for X-ray apparatus to get into ignorant hands and he hoped that the Government would do all they could to encourage the training of radium officers and to improve their status. He hoped that, in keeping of adequate records, care would be taken to build on the records of the past. For the first time under the new scheme local authorities were given responsibility for cancer. Hitherto the organisation of cancer treatment had been largely left to the voluntary hospitals and to the medical faculties of certain universities. Cooperation between local authorities and the great voluntary hospitals in the organisation of the schemes necessary under this bill was desirable.

The Earl of **Suffolk and Berkshire**, who is engaged in pharmacological research at Oxford, supported the amendment. He remarked that while much had been said about the treatment of cancer by radiotherapy he had not heard anything about research in chemotherapy. Chemotherapeutic successes had been won slowly, and they had very nearly reached the stage where they might yield something of value. He was assured that chemotherapy was showing remarkable promise in a laboratory in London, the Cancer Hospital (Free), under the direction of Prof. Kennaway and his co-workers. They had discovered a compound which when injected would reduce the size of a tumour to a singularly small pin's head. Admittedly this had not yet been tried in clinical medicine, but he prophesied that in a very short time successful results would be obtained on these lines. Lord Suffolk thought that it was advisable that more money should be provided for cancer research. He had actually seen a brilliant experiment, which might well have changed the whole complexion of the cancer problem, held up for the lack of £12 10*s*. As to watertight compartments, recently he had seen a scheme for a central clearing-house for the direction of research and for the communication of published papers.

Viscount **Trenchard** said that as one who had some slight knowledge of the want of research into this terrible disease he would support the amendment.

Viscount **Samuel** said in his opinion the whole attitude of the state towards research was wrong. Considering the vastness of the national income and revenue the sums expended on research were insignificant compared with the need. Research was not a matter for spasmodic voluntary contributions, for appeals to emotion, for sending round the hat, for bazaars, and all the various propaganda for voluntary efforts. National health, though not more urgent than national defence, was at least as necessary, and the requirements of research for the prevention and cure of cancer should surely command at least as great attention and sympathy from the Government. They had witnessed great triumphs of both preventive and curative medicine during the last century. There was no reason why they should adopt a mood of fatalistic surrender and believe that the problem of cancer was insoluble. The report of the Medical Research Council showed that there were very many hopeful developments. For these reasons he supported the amendment.

The Duke of **Devonshire**, under-secretary of state for dominion affairs, replying to the debate, said that the question of increased grants by the Government towards research could not properly be dealt with in this bill. Legislation was not necessary to enable the Government to allocate increased funds for that purpose. He hoped that the immensely authoritative statements which had been made in their Lordships' House would have some effect on the Lord President of the Council. He promised to bring the very weighty representations of the various speakers in the debate to the notice of the Chancellor of the Exchequer.

Lord **Balfour of Burleigh** said that he knew quite well that he could not get any of the £700,000 for research and he had no desire to deprive the treatment side of a penny of that money. As regards the satisfactory figures quoted by Lord Donoughmore of lives prolonged by radium treatment, they were all cases of cancers treated in the early stages and in accessible positions They were selected cases for which this treatment was proven and for which they all welcomed the fact that treatment was to be extended If he (Lord Balfour) was wrong in estimating the average duration at eighteen months the great army of victims of cancer to which he had referred could only be greater because if the duration of the disease was longer and 70,000 died every year then the size of the army was extended by the length of the duration of the disease Therefore he submitted that his picture was rather an understatement than an exaggeration While he was grateful to the Duke of Devonshire for what he had said he was not entirely satisfied The money required for research was infinitesimal compared with the amount which the Government were devoting to treatment To establish a research unit such as the Medical Research Council had in mind would cost something like £30,000 a year for ten or fifteen years In view of the expression of opinion that had fallen from noble lords in every quarter of the House before he withdrew his amendment he appealed for some expression of opinion from the Government that it would be possible to deal with this matter of research —Earl STANHOPE, First Lord of the Admiralty, said that he would certainly represent to the Chancellor of the Exchequer the expression of opinion from all quarters of the House The amendment was by leave withdrawn and the bill was read a second time

COOPTION ON CANCER COMMITTEES

In the House of Lords on March 21 the Cancer Bill was considered in Committee The Earl of ONSLOW was in the chair

Lord ELTISLEY, moving an amendment on behalf of the County Councils Association, explained that under clause 1 it became the duty of every county and county borough council in England and Wales to secure facilities for the treatment of persons suffering from cancer, and the Minister of Health might require two or more such councils to combine for the purpose Joint boards or joint committees so constituted could coopt outside persons up to a third of their personnel They could do this without obtaining the assent of the local authorities who set them up, and once established the joint committees could snap their fingers at the local authorities Under the terms of Lord Eltisley's amendment it was proposed that before cooption was allowed the assent of those responsible for setting up the committees must be obtained Local authorities regarded this power of coöption as a dangerous innovation introduced into local government and as inconsistent with previous legislation —The DUKE OF DEVONSHIRE accepted the amendment on behalf of the Government

ADVERTISEMENT OF CANCER CURES

Viscount BERTIE OF THAME moved an amendment to provide that the prohibition of the advertisement of cancer cures should not apply to reports or accounts of treatments for cancer issued or published orally or otherwise by practitioners registered or unregistered to persons or in publications other than those specifically mentioned in the bill He argued that the clause in its present form would stop a great many unregistered persons from carrying on investigations which might prove of incalculable value to mankind Registered practitioners, he said, had the medical press in which to express their views and publish the results of their investigations, but unregistered persons had no such means In this matter he was thinking also of such persons as herbal curers faith healers and Christian Science practitioners It was true that the present Solicitor General had said that he would not give his consent to a prosecution in the case of such persons but that did not bind the learned gentleman's successors

The DUKE OF DEVONSHIRE said that the Government could not accept the amendment, for its effect would be to enable either medical practitioners or any other persons to advertise any cure It was desirable to take steps to deal with a possible recrudescence of the advertising of cures for cancer. The clause did not prohibit any unregistered person from treating cases, or from making investigations, nor did it prohibit him from circulating the results of his investigations to the persons and bodies mentioned in the bill Nor did the clause prohibit him from securing publication in a scientific or other periodical of any results he might achieve All it did was to prevent him from holding out a cure and advertising himself or his associates or his methods or material as a cure The Government was not anxious to interfere with any such body as the Christian Scientists

The MARQUESS OF LOTHIAN agreed that it was important to prevent advertisements of quack remedies, but it was also important to close no possible avenue by which a cure for cancer might be found, even though it was unorthodox

The Lord CHANCELLOR said that damage would be done by all sorts of people making reckless statements about cures This clause was really necessary in the interests of the public In the extraordinarily unlikely case of a layman being able to discover and test the validity of some alleged cure for cancer he would have no difficulty in bringing the matter before the world

The MARQUESS OF LOTHIAN said that there was trade-unionism in every profession, and there had been certain cases in which considerable obstruction had been put in the way of medical discoveries by unorthodox means He wanted to be quite sure that there was some way by which, if an unorthodox person did find a remedy, that remedy would be investigated and the results published —The Lord CHANCELLOR replied that there was no difficulty in the way of an unorthodox person making known an alleged discovery of a cure for cancer to those who were not likely to be misled Advertisements could be made, for example, to members of either House of Parliament, to local authorities, to governing bodies of hospitals, registered medical practitioners, nurses, pharmacists and others He could not believe that in those circumstances there was any risk of any miracle of that kind remaining unknown

The amendment was by leave withdrawn

Bastardy (Blood Tests) Bill

In the House of Lords on March 16 on the motion of the Earl of LUCAN the following were named as the Select Committee to consider the Bastardy (Blood Tests) Bill Earl Beauchamp Viscount Dawson of Penn, the Bishop of Salisbury, Lord Foxford, Lord Strathcona and Mount Royal, Lord Merthyr, Lord Swinfen and Lord Brocket

The Mining Industry (Welfare Fund) Bill was read the third time and passed

QUESTION TIME

WEDNESDAY, MARCH 15

Medical Supplies on British Ships

Sir WALTER SMILES asked the President of the Board of Trade if he was aware that many large ocean going British ships did not carry the latest proved drugs for combating sepsis, and if he would consider some alteration in the regulations so that these were carried, with instructions for their use —Mr RONALD CROSS, parliamentary secretary to the Board of Trade, replied. My right hon friend is causing full inquiries to be made into this matter and he will consider whether the existing regulations need to be amended

THURSDAY, MARCH 16

Nutritional Standards of School-children

Mr RIDLEY asked the Parliamentary Secretary to the Board of Education what percentage of children attending elementary schools under the authority of the Lancashire Derbyshire, Durham and Glamorgan county councils were found at the last routine nutrition inspection to be excellent, normal slightly subnormal and bad respectively —Mr KENNETH LINDSAY replied The following are the returns concerning the nutrition of children attending public elementary schools submitted by the school medical officers for the four areas in question for the year 1938 .—

Area	Excellent	Normal	Slightly subnormal	Bad
	%	%	%	%
Lancashire ..	10 61	80 67	8 29	0 41
Derbyshire ..	16 46	63 91	19 16	0·45
Durham ..	14 64	60 41	23 39	1 54
Glamorgan .	6 43	70 92	22 09	0 55

Tuberculosis in Wales

Sir WILLIAM JENKINS asked the Parliamentary Secretary to the Board of Education if, in view of the report of the commissioners on tuberculosis in Wales, he would have an immediate survey made in all the schools of Wales by his medical advisers to ascertain what additional measures should be taken to ensure that all children were properly fed —Mr KENNETH LINDSAY replied : The adequacy of the provision of free meals and milk in all areas in Wales is already being reviewed by the Board of Education and letters recommending improvements in the arrangements have been sent to a considerable proportion of the local education authorities Visits to several areas have been or will be made by the board's medical officers, at which the nutrition of children in typical schools is surveyed The responsibility for surveying the schools as a whole rests, however, with the local education authorities and their medical officers, and it is the duty of my department to coördinate as far as possible the standards used in the assessment of nutrition and to supervise and stimulate the activities of the authorities rather than to replace them.

Dr SUMMERSKILL asked the Minister of Health whether, in view of the recent report on tuberculosis in Wales and the revelation of the low standard of housing, he would take steps to make the appropriate county authorities take over the duties of the defaulting boroughs and submit a rehousing scheme for families living in overcrowded conditions.—Mr. ELLIOT replied : I am not yet in a position to make any statement on the recommendations contained in this report As the hon member will realise the report covers a great deal of ground and is at present under consideration In the first place I am asking the Welsh Board of Health and local authorities in Wales for their observations Meanwhile I am sure the House would like me to express the gratitude of all of us to the members of the committee, including one of our parliamentary colleagues, who have devoted so much time and attention to the investigation of these questions, and have produced so striking a report

Dr. SUMMERSKILL : Does not the Minister think that in view of the fact that these inquiries have covered a period of two years, and that much of the work of rehousing is of such an urgent character, he *ought to take action* immediately ?—Mr ELLIOT : It is clear that the report in several respects calls attention to the work of local authorities and I think it is desirable that local authorities whose actions have been questioned should have an opportunity of making representations

Dr SUMMERSKILL · Will the right hon gentleman direct his attention to those parts which are described as being *of such a shocking character that they are even worse* than the slums of Shanghai , and would he direct his personal attention to ameliorating the conditions in these particular places ?—Mr ELLIOT · Yes, I have already done so. The rural housing conditions in Wales were the subject of a good deal of attention and last summer I went round the Welsh local authorities' areas myself and had special conferences to draw their attention to the exceptionally favourable terms now offered for rural housing

Mr J GRIFFITHS : Since I gather that the right hon gentleman's own inspectors have reported these conditions to the Ministry which are appalling, can he explain why no action was taken on the report of his inspectors before the report was published ?—Mr ELLIOT · Yes, Sir, on certain things action was taken, such as improving conditions for rural housing. As to the rest of the matter I have made repeated representations to the local authorities

Mr GRIFFITHS Since it is obvious that they have not carried out those recommendations, what other action is the Minister going to adopt ?

Sir F. FREMANTLE : Is it not rather early to expect local authorities to have done much under the Rural Housing Act which was passed only twelve months ago ?

No further reply was given.

Examination Tests for Nurses

Mr. LIDDALL asked the Minister of Health whether he would consult with the medical authorities, with a view to establishing two grades of state-registered nurses, as the present examination tests for nurses were not consonant with actualities and national requirements, and prevented many suitable persons from giving valuable service to the sick, and were therefore contrary to the interests of the public should an emergency arise —Mr ELLIOT replied This is one of the matters under consideration in connexion with the interim report of the Interdepartmental Committee on Nursing Services which was recently published

Sir J LAMB : When is my right hon. friend likely to take action on the matter, because this delay is causing *great irritation ?*

Dental and Ophthalmic Treatment

Mr. JENKINS asked the Minister of Health whether he would consider the appointment of a departmental committee to consider and report on the advisability of making available dental and ophthalmic treatment to all members of national health insurance approved societies. —Mr ELLIOT replied . The provision of dental benefit and ophthalmic benefit as statutory benefits available to all insured persons would require an increase in the weekly rates of contribution at present paid by insured persons and their employers, and would also involve a substantial increase in the amount payable from the Exchequer towards the cost of national health insurance This is one of a number of suggested major extensions of the national health insurance and contributory pensions schemes which will have to be examined when the time is opportune and placed in an appropriate order of priority, due regard being had to the financial and other considerations involved In the meantime I do not think it desirable that a special departmental committee should be appointed to investigate this particular suggested extension

Mr. JENKINS . Is not the right hon gentleman aware that there are quite a number of approved societies, particularly those whose members come from the heavy industries where the incidence of sickness is highest, which are unable to provide their members with these services, and will he see that they get equal treatment under national health insurance ?—Mr ELLIOT It is true that societies have made representations suggesting that other societies should assist them in this matter, which is a very difficult subject. I cannot undertake to see that agreement is reached

Replying to a further question by Mr Sutcliffe, Mr ELLIOT said Any estimate of the cost of providing dental benefit as a statutory benefit must necessarily be highly conjectural in the absence of reliable data as to the proportion of insured persons who would be likely to apply for treatment in the course of a year, and the average amount of treatment which would be required in each case to secure dental fitness The average cost per case under the existing additional benefit arrangements is about £4 and the claim-rate is less than 10 per cent of the persons eligible, but these figures bear little relation to the proportion of insured persons who might apply for treatment if a statutory benefit, including payment of the whole cost of treatment, were provided—a consideration which would probably also affect the average cost per case.

Aged Coroners and Retirement

Sir ARNOLD WILSON asked the Home Secretary whether he was aware that several coroners were 90 years of age ;

d whether he would consider, in the public interest, me means of encouraging them to end a career of public rvice by providing facilities for honourable retirement.—r Geoffrey Lloyd, under secretary, Home Office, plied: Coroners are appointed by the local authority d my right hon. friend has no information as to the es of coroners though he is aware that some of them e of an advanced age. As regards the second part of e question, I would refer my hon. friend to section 6 of e Coroners (Amendment) Act, 1926, which makes rovision for the superannuation of county and borough roners in the circumstances prescribed in that section.

Silicosis Schemes and the Three Years' Rule

Mr James Griffiths asked the Home Secretary what ction he proposed to take to deal with the injustices rising from the operation of the three years' rule under e Various Industries (Silicosis) Schemes.—Mr Geoffrey Lloyd: My right hon. friend is contemplating an exten on of the three years' limit and is having draft schemes r that purpose prepared for consideration by the parties oncerned. It will apply to various industries.

Aftercare of Discharged Prisoners

Dr Summerskill asked the Home Secretary whether his ttention had been drawn to the recent case of murder here the murderer, now proved to be of unsound mind, ad already been sentenced for various other brutal ttacks on young women; and what aftercare methods ere adopted by the prison authorities to keep criminals f this kind under observation.—Mr Geoffrey Lloyd eplied: The hon. member has been good enough to nform my right hon. friend of the case to which she efers in the first part of her question, but as the Home ecretary has recently ordered a medical inquiry into the ental condition of this prisoner I am unable at present o make any statement about this case. As regards the econd part of the question, if a person undergoing deten ion is certified to be insane or mentally defective proper rrangements would, of course, be made for his care, but n the case of the prisoner in question his examination while he was in prison on a previous occasion showed that it was not possible so to certify him.

Dr Summerskill: Is the hon. gentleman aware that the senior medical officer at Brixton and the medical fficer at Wormwood Scrubs were both willing to certify this man, and in fact said that two other brutal attacks which he had made during the last two or three years were due to mental instability; and in view of the fact that Mahony is now only 23 years of age, and that the prison authorities have such a careful follow-up of prisoners, does not the hon. gentleman think that young prisoners of this kind should be kept under some kind of observation?—Mr Lloyd: There are certain powers for keeping young prisoners under observation after they have left prison, but I was not aware of the detailed facts which the hon. member has mentioned. If my information is correct it was not possible to certify him.

TUESDAY, MARCH 21

Civil Servants and Vaccination

Mr Leach asked the Secretary to the Treasury whether applicants for posts in the civil service had still to make a statutory declaration of objection to vaccination or a written statement of objection, or whether unvaccinated applicants were admitted without being required to state their objection.—Captain Euan Wallace replied: In the case of established appointments to the home civil service, the civil service commissioners do not require a candidate to be vaccinated or to make a statutory declaration or written statement of objection to vaccination. In the case of posts abroad, the commissioners do not regard candidates as constitutionally fitted for appointment unless in the view of the medical examiner they are sufficiently protected against smallpox.

Evidence Before Welsh Anti-tuberculosis Committee

Mr Owen Evans asked the Minister of Health if the evidence and memoranda submitted to the committee of inquiry into the anti tuberculosis service in Wales would be published.—Mr Bernays, parliamentary secretary to the Ministry of Health, replied: A neostyled copy of the evidence given before this committee was placed in the Library of the House on the 13th instant. My right hon. friend does not propose that the evidence should be printed.

INCORPORATED SOCIETY OF CHIROPODISTS

The annual dinner of the society was held at the Trocadero restaurant, London, W., on March 18, with Mr John H. Hanby in the chair. Dr H. Letheby Tidy, proposing the toast of The Profession of Chiropody, said that great things had been happening to chiropody in recent years. He did not believe that the increase of their work was due to the type of shoes worn by the younger generation. A demand for all services that contributed to better health was widespread and it was through this demand that increased work would come to their craft. One difficulty of any specialised work was the risk of overlooking some condition which was outside its limits. It was inevitable that from time to time, however much care was taken, some such case would occur and might result in damages. But such isolated instances would reflect no discredit on the craft of chiropody or justify any change in the curriculum. Their work could never stand still; it must always progress and always change, and he hoped that to prevent disease would be among their aims. That involved careful record and observation and discussion of the conditions which came before them. Great work had been done by the society and all those who had fought for so long to bring it to its present position.

The Chairman, in reply, said that in the last two or three years their profession had emerged to a new status and new prospects. For twenty five years their predecessors worked hard towards the goal which they had now obtained—namely, recognition by the medical profession and the full confidence of the public. No man, woman or child could be physically fit if suffering from disabilities of the feet, and the development of a scheme for chiropody treatment as a benefit under national health insurance would be of great advantage to the country. He hoped that the register of approved chiropodists, to be published in the next few months, would go far towards counteracting the ramifications of undesirable foot clinics which were springing up almost daily.

The Lord Mayor of London (Sir Frank Bowater), replying to the toast of The Guests, proposed by Dr A. W. Oxford, said that he considered the examination of the feet, teeth and physical condition of school-children as done by the L.C.C. was of paramount importance if we were not to have a C 3 race.

"... One reason the medical lecture has gone out of style is that there are no longer lecturers of the old type; researchers are seldom eloquent speakers. To be oratorical it is necessary to deal only with the most superficial of facts, if any, as the politicians abundantly demonstrate, while the researcher must weigh each bit of evidence carefully. I give place to no man in the appreciation of the medical researcher but his problems are not for the medical student. Researchers should be quarantined both for their own good and for the good of the student. I speak sympathetically, because I have dabbled in the border lines myself, but I have never mentioned them to my students. The fact should be recognized that the average doctor never does catch up with what the researcher is doing. We doctors should be spared the agony of the scientific delivery room and should be allowed to hold the baby only after the nurse has him all polished up and dressed."—From "The Horse and Buggy Doctor," by Arthur E. Hertzler. London. 1939.

MEDICAL NEWS

University of Cambridge

On March 17 the following degrees were conferred .—

M Chir—D B McGavin
M B , B Chir—*F A Simmonds, E K Gardner, A. M Thomas, and J. D Wade
M B—R H Dale and A C Fraser.

* By proxy

The honorary degree of D Sc is to be conferred upon Sir Henry Dale, F R S , director of the National Institute for Medical Research

University of Dublin

On March 15 the following degrees and licence were conferred :—

M B , B Ch , B A O—J W Cathcart, E R Coetzee, Mary A Conyngham, R C H Cooke, M O Drury, C J Du Preez, L A S Edmondson, Sylvia M FitzGerald, T W Hanna, D G Harrison, F R T Hollins, L S Levinson, R A Lutton, Rosaleen de C McCormick, Bridget P Mansfield, E R F Mellon, F P O'Sullivan, William Sandford, R J Sandys, Boris Serebro, Simon Sevitt, E. N O Sodeinde, M E Tapissier, and L I Warnock
L Med , &c—Noel McSharry

Research Fellowships

Particulars of the following fellowships will be found in our advertisement columns this week —

Fellowship in psychiatry—The Child Guidance Council offers three fellowships, each of £300, tenable for a year for half-time work at their Islington clinic

George Henry Lewes studentship—This studentship is open to men and women and the student is expected normally to work in the department of physiology in the University of Cambridge

Kathleen Schlesinger research fellowship—The Medical Research Council invite applications for this fellowship which is usually tenable at the National Hospital, Queen Square The fellow will devote his or her whole time to "investigating the origin and nature of cysts of the brain "

College of Nursing

At the meeting of the council on March 16 Miss B Monk was re-elected president for 1939–40 It was announced that the Scottish board of the college, which has moved to 40, Melville Street, Edinburgh, 3, is now the body responsible for compiling and maintaining the central register of trained and assistant nurses for Scotland Five bursaries of £20 each are to be awarded to members or ex-members of the Student Nurses' Association for postgraduate work. The council agreed to reaffirm their support of the principle that qualified sister tutors be included as teachers of anatomy, physiology, and hygiene in the proposed prenursing courses for the first part of the preliminary state examination

Conference on Nutrition

A conference on the wider aspects of nutrition will be held by the British Medical Association at B M A House, Tavistock Square, London, W C 1, from April 27 to 29 Sir Arthur Salter will deliver an inaugural address, and Prof. E P. Cathcart, F R.S , Sir Robert McCarrison, F.R C P , and Dr G P. Crowden will speak on medical aspects of nutrition At the afternoon session Lord Astor will open a discussion on means of stimulating production from the point of view of home agriculture, and other speakers will be Mr. Anthony Hurd, agricultural correspondent of the *Times*, and Prof W. C. Miller, Courtauld professor of animal husbandry at the Royal Veterinary College Mr. F. L McDougall, economic adviser in London to the Government of the Commonwealth of Australia will speak for overseas producers The stimulation of consumption by family allowances and the provision of cheap or free milk or meals in necessitous cases will be discussed next day by Mr L S Amery, M P , Mr L J Cadbury, Sir Kenneth Lee, and Dr Stella Churchill On the last day of the meeting Mr W O Lester Smith, director of education for Manchester, and Prof V. H Mottram, professor of physiology in the University of London, will describe the importance of education as a means of increasing consumption. At 8 15 P M on April 28 Prof Mottram will deliver the Sir Charles Hastings public lecture of the association He will speak on nutrition and the public health Further information may be had from the secretary of the association

University of Sheffield

The honorary degree of D Sc will be conferred on Prof Miles Phillips at a congregation on July 1

King's College Hospital, London

The next meeting of the Listerian Society will be held on March 29 at 8 30 P M , when Dr. Wilfrid Sheldon will deliver his presidential address

Local Medical and Panel Committee for the County of London

The offices of this committee will be removed on Monday, March 27, to Tavistock House (South), Tavistock Square, W C 1

King Edward's Hospital Fund for London

A series of privileged visits to places of historic interest has been arranged in aid of this fund The programme includes visits to St James's Palace (April 19), the Houses of Parliament (April 26) , the Tower of London (May 10) . Windsor Castle (May 19) , and the Royal Naval College, Greenwich, and the National Maritime Museum (May 26) Further details of the arrangements may be had from the secretary of the fund, 10, Old Jewry, London, E C 2

European Mental Hygiene Reunion

The sixth European Mental Hygiene Reunion will take place at Lugano, Switzerland, from June 4 to 6 The conference of the Swiss Psychiatric and Neurological Societies will be held during the preceding two days The main theme of the discussions at the reunion will be mutual understanding and mental hygiene, and the speakers will include Dr. Emanuel Miller and Dr G. R Hargreaves Those who wish to enrol are asked to write to the secretary of the National Council for Mental Hygiene, 76, Chandos House, Palmer Street, London, S W 1, who will furnish full particulars of the programme and arrangements

Royal Society

The following have been elected to the fellowship of the society : G S. Adair, assistant director of research in physiology, University of Cambridge , C H Andrewes, M D , pathologist at the National Institute for Medical Research , Max Born, Sc D , Tait professor of natural philosophy, University of Edinburgh , A J Bradley, assistant director of research in crystallography, Cavendish Laboratory, Cambridge ; David Brunt, professor of meteorology, Imperial College of Science and Technology, University of London , F. A E Crew, M.D , Buchanan professor of animal genetics, University of Edinburgh , F W Edwards, Sc D , deputy-keeper of entomology, British Museum , B M Jones, Mond professor of aeronautical engineering, University of Cambridge , G. W. C Kaye, D Sc , superintendent of the physics department of the National Physical Laboratory , E G T Liddell, D M , fellow of Trinity College and lecturer in physiology, University of Oxford , E J Maskell, Ph D , lecturer in plant physiology, University of Cambridge , Irvine Masson, D Sc , vice-chancellor of the University of Sheffield, formerly professor of chemistry in the University of Durham , C E K Mees, vice-president of the Eastman Kodak Company, Rochester, N.Y , M H A Newman, lecturer in mathematics, University of Cambridge , H H. Read, D Sc , professor of geology, Imperial College of Science and Technology, University of London , Sir Reginald Stapledon, professor of agricultural botany and director of the Welsh Plant Breeding Station, Aberystwyth, H M Turnbull, D M , professor of morbid anatomy in the University of London and director of the Bernhard Baron institute of pathology at the London Hospital. E E Turner, D Sc , head of the department of organic chemistry, Bedford College, University of London ; V B Wigglesworth, M D , reader in medical entomology, London School of Hygiene and Tropical Medicine , and E J. Williams, D Sc , professor of physics, University of Wales, Aberystwyth.

County of London

Colonel P H Mitchiner, C B E, F R C S, K H S, has been appointed a deputy lieutenant for the county

General Medical Council

At a meeting of the executive committee of the General Medical Council, held on Feb 27, it was reported that the names of Alexander Lane and Stephen Somogyi had been restored to the Medical Register after non penal removal

It was resolved that the degrees of M D and M S Lucknow M S Madras and M D, M S Patna should for the time being be recognised as registrable in the colonial list of the register

International Association for the Prevention of Blindness

The general assembly of this association will be held at 1, Wimpole Street, London W 1, at 2 30 P M on Wednesday, April 19, under the presidency of Dr P Bailliart Dr A H H Sinclair (Edinburgh) will open a discussion on the application of the Credé method for the prevention of ophthalmia neonatorum in various countries Other speakers will include Dr R P Wilson (Egypt), Prof F Terrien (France) Prof von Szily (Germany), Dr J D M Cardell (Great Britain) Prof L Maggiore (Italy), Dr Conrad Berens (United States), and Prof A Vasquez Barrière (Uruguay) A film on preventive measures against industrial eye injuries will also be shown Further information may be had from the secretariat of the association 66, boulevard Saint Michel, Paris, VI

Royal Society of Medicine

A medical week is to be held from April 24 to 29 for the benefit of fellows of this society who live out of London Clinical meetings will be held by the section of medicine at Guy's Hospital, by the section of neurology at the National Hospital Queen Square, and by the section of physical medicine at the London Hospital The clinical section will hold a meeting at which cases will be shown, and the sections of disease in children and of urology will also meet Prof Robert Bradlaw will read a paper on dental innervation to the section of odontology, and Mr G L Pepler, chief town planning inspector of the Ministry of Health, will speak on town and country planning to the section of epidemiology and state medicine The section of pathology hope that Dr H E Robertson (Mayo Clinic) will address them on the significance of residual lesions of the stomach Further information may be had from the secretary of the society, 1, Wimpole Street, London, W 1

Red Cross Clinic for Rheumatism

The ninth annual report of the British Red Cross Society's clinic for rheumatism shows a deficit of £4000 on the year's working as against an average yearly deficit of £1750 The total accumulated deficit on Dec 31, 1938, amounted to £10,400 but negotiations now being carried on may lead to much benefit in this respect The average cost of each general patient attendance was 5s 2d, of which treatment accounted for 9 7d The number of patients seeking early treatment continues to increase, but the total number of attendances slightly diminished, owing partly to the international crisis of last September (during which no new applications were received and some appointments were not kept), partly to repairs, and partly to congestion Steps have since been taken to prevent congestion of the treatment rooms by patients who can derive but little benefit or can be suitably treated elsewhere The massage treatments given during the year numbered 84 624 and the baths 43,851 The results of completed treatment in 2109 cases are given as 35 per cent free from subjective symptoms, 51 per cent definitely improved 13 per cent unchanged or only slightly improved, and 1 per cent worse The London County Council has set aside six beds for rheumatic patients at St Stephen's Hospital and six beds at St Peter's Hospital Kilburn have been offered for women suffering from chronic rheumatoid arthritis Otherwise there are very few facilities for the treatment of rheumatic inpatients and it is stated that there is as yet no place where a patient can obtain prolonged rest and treatment during convalescence

Empire Rheumatism Council

A meeting at which the Duke of Gloucester will speak is to be held in support of this council at the Mansion House, London, on April 25 at 3 30 P M

Postgraduate Course for Insurance Practitioners

An afternoon course of postgraduate study for London insurance practitioners will begin at the British Postgraduate Medical School, Hammersmith, next month The course will meet on Tuesdays and Fridays from April 18 to July 7 from 2 to 4 30 P M Twenty two practitioners will be invited to attend, and if the experiment is a success the scheme may be extended

A Danish Health Exhibition

The prime minister of Denmark last week opened a popular health exhibition in Copenhagen By arrangement with the Central Council of Health Education, the "Fitter Britain" exhibits from the Glasgow Exhibition have been taken over to Copenhagen There are also exhibits from Germany

Food Education Society

On April 19, at 8 P M, Dr E C Pilman Williams lecturer in biochemistry at the Royal Free Hospital, will speak to this society on diet in rheumatism On April 26, at 8 P.M, Sir Albert Howard, formerly director of the institute of plant industry, Indore, will deliver the Bircher Benner memorial lecture His subject will be health, nutrition and soil fertility Both lectures will be held at the London School of Hygiene, Keppel Street, W C 1 Further information may be had from the secretary of the society, Gordon House, 29, Gordon Square, London, W C 1

Preservation of Child Life

In the Chadwick lecture which he delivered on this subject on March 14 Dr J B Howell, medical officer of health for Hammersmith, reminded his audience that although there had been an enormous saving in the lives of children since the beginning of this century there were still every year in England and Wales 35 175 deaths in the first year of life With the 24,806 stillbirths which occurred annually this made a potential loss of 59,981 lives The reduction which has been effected in the death rate has been in the last eleven months of the first year of life, in the neonatal period it has remained almost unchanged Of the 35,000 deaths under one year in 1937, 18,168 were in the first month, and of these 6607 were on the first day Dr Howell thought that the fact that more deaths occurred in the first month than in all the next eleven months suggested that the difficulty was obstetric in origin

Moorfields Dinner

The annual dinner of past and present students of the Royal London Ophthalmic (Moorfields) Hospital took place on March 9 Mr A F MacCallan who was in the chair, proposed the toast of The Hospital and Medical School, and Mr Theodore Luling, the chairman of the hospital, and Mr Charles Goulden, the dean of the medical school, replied Mr Goulden said that during 1937–38 one hundred and four new students had joined and there were seventy five students who remained from the previous year The school had lost through retirement Mr Affleck Greeves Mr Rupert Scott and Mr H B Stallard Mr C D Shapland Mr J H Doggart, and Mr Harold Ridley had been elected in their place, and Mr A B Goldsmith had been appointed curator and pathologist One important change about to take place was the appointment of a full time pathologist, with the aid of funds provided by the lay management of the hospital supported by a grant from the school At the D O M S examination, of the 57 successful candidates 29 were students at the school, and in the second part, of 67 successful candidates 46 had studied at Moorfields At the D O examination of the University of Oxford, of 18 successful candidates 10 were students of the school Two students had also obtained the F R C S I in ophthalmology

The toast of The Guests was proposed by Mr M H Whiting and Sir Adolphe Abrahams replied The health of the chairman was proposed by Mr F A Juler

National Fitness Campaign

The Central Council of Recreative Physical Training have arranged summer holiday courses for leaders of outdoor and indoor recreation. A three months' residential course for men will be held at Loughborough College, Leicestershire, from April to July There will also be summer schools for women at Milton Mount, Crawley, from July 31 to Aug. 11, and at Harrogate College, Yorkshire, from Aug 14 to 26 Summer camps for men will be held at Kingstanding, Staffordshire, from July 29 to Aug 10, at Heswall, Cheshire, from Aug 26 to Sept 2, and at a southern centre not yet selected from Aug 12 to 19 Further particulars may be had from the organising secretary of the council, Abbey House, Victoria Street, London, S W.1.

Royal Westminster Ophthalmic Hospital

Lord Mersey, chairman of the committee of management, at its annual general meeting on March 16, said that the hospital had experienced an extremely difficult year, especially during the critical period in September, but he was pleased to say that the ordinary income had increased by £1000, and the total was only down by about £6 There had been a considerable increase in the number of patients, and a big demand upon special departments such as the orthoptic for the treatment of squint, and the electrotherapeutic department. Mr. P McG Moffatt and Mr. A. S. Philps had been elected assistant surgeons, and the Sir Richard Cruise clinical research scholarship had been awarded to Mr. J D. Martin-Jones, registrar of the hospital, who had already submitted two interim reports on intra-ocular cancer. Lord Mersey announced that in the event of war the hospital would be taken over by the borough of Holborn as a first-aid station for air-raid casualties, and the hospital staff and equipment would be attached as an eye unit to a base hospital outside London.

Medical Diary

March 27 to April 2

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole Street, W 1.

MONDAY

Odontology 8 P M, clinical meeting

TUESDAY

Medicine 8 30 P M, Dr L E H Whitby, Dr G J Langley, and Dr W F Gaisford. Recent Advances in the Treatment of Pneumonia

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W 1

MONDAY—8 30 P M, Prof Edwin Bramwell, Mr R Foster Moore, and Dr Anthony Feiling The Ocular Manifestation of General Disease

TUBERCULOSIS ASSOCIATION.

THURSDAY—2 30 P M (St John's College, Cambridge), Prof Sebrechts (Bruges): Apicolysis with Plombage by the Pectoral Muscles in the Surgical Treatment of Giant Cavities 4 30 P M, Dr E T W Starkie, Dr T W. Davies, and Dr. A Brownlee. Problem Cases

FRIDAY—9 45 A M, Mr N R Barrett: Tuberculosis of the Thoracic Wall 11 15 A M, Dr F R G Heaf: How far should the State consider the Individual in Planning a Tuberculosis Scheme?

SATURDAY—9 45 A M, Dr Brian Thompson and Mr E S Evans Tuberculous Cervical Adenitis 11 A M, Mr R Scott Stevenson: Radiology of the Larynx

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

SOCIETY OF APOTHECARIES OF LONDON, Water Lane, E C 4

WEDNESDAY—9 P M, Dr D Evan Bedford Left Ventricular Failure (Joseph Strickland Goodall lecture)

UNIVERSITY OF BIRMINGHAM

TUESDAY—4 P M (Queen Elizabeth Hospital), Dr J. M. Smellie: Infantile Diarrhœa (Ingleby lecture)

UNIVERSITY OF GLASGOW

TUESDAY—4 30 P M (Tennent Memorial Building, Church Street), Dr John Marshall: The Eye and Vitamin Deficiency

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane Road, W.12.

TUESDAY—4 30 P M, Dr C M Hinds Howell Syphilis of the Nervous System

WEDNESDAY—Noon, clinical and pathological conference (medical) 3 P M, clinical and pathological conference (surgical)

THURSDAY—2 15 P M, Dr Duncan White: radiological conference 3 30 P M, Dr T. N MacGregor: Functional Uterine Bleeding

FRIDAY—2 P M, clinical and pathological conference (obstetrics and gynæcology)

Daily, 10 A M to 4 P M, medical clinics, surgical clinics and operations, obstetrical and gynæcological clinics and operations

NATIONAL HOSPITAL, Queen Square, W C 1.

MONDAY—3 30 P.M, Dr C P Symonds: Cerebral Tumours (3).

TUESDAY—3 30 P M, Dr J Purdon Martin. Acute Infective Diseases of the Brain

WEDNESDAY—3 30 P.M, Dr F M R. Walshe clinical demonstration

THURSDAY—3 30 P M, Dr Denis Brinton: Vascular Disease of Central Nervous System

FRIDAY—3 30 P M, Mr F A Williamson-Noble: Optic Atrophy

Outpatient clinic daily at 2 P M.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W C 1

THURSDAY—2 P M, Mr T Twistington Higgins. Hypertrophic Pyloric Stenosis 3 P M, Mr James Crooks, Diseases of the Nose and Accessory Air Sinuses

Outpatient clinics daily at 10 A M and ward visits at 2 P M

ST GEORGE'S HOSPITAL, S W 1.

THURSDAY—5 P M, Dr Anthony Feiling neurological demonstration

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL, N W 3

WEDNESDAY.—4 P M, Dr E Rohan Williams. Radiological Study of the Gall-bladder

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn Road, W C 1

FRIDAY—4 P M, Mr J. D McLaggan. Injuries to the Nose and Face

ST JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE, 42, Ranelagh Road, S W.1.

FRIDAY—3 30 P M, demonstration of teamwork in the rheumatic diseases by members of the staff

FELLOWSHIP OF MEDICINE AND POSTGRADUATE MEDICAL ASSOCIATION, 1, Wimpole Street, W 1

MONDAY to SUNDAY—BROMPTON HOSPITAL, S W 3, Tues. and Fri, 5 15 P M, M R C P, course in chest diseases—CHELSEA HOSPITAL FOR WOMEN, Arthur Street, S W 3, all-day course in gynæcology—WEST END HOSPITAL FOR NERVOUS DISEASES, Welbeck Street, W 1, afternoon M R C P course in neurology—MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W 1, Mon, Wed., and Fri, 5 15 P M, primary F R C S physiology course—BRITISH LEGION HEADQUARTERS, 25, Eccleston Square, S W 1, Thurs, 8 30 P M, lecture on Surgical Treatment of Pulmonary Tuberculosis—PRINCESS ELIZABETH OF YORK HOSPITAL, Shadwell, E 1, Sat and Sun course in children's diseases

MANCHESTER ROYAL INFIRMARY.

FRIDAY—4 15 P M, Mr R L Newell: surgical cases

LEEDS GENERAL INFIRMARY

TUESDAY—3 30 P M, Mr W R Henderson: demonstration of neurosurgical cases

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION

WEDNESDAY—4 15 P M. (Western Infirmary), Dr J G Macgregor-Robertson: Venereal Disease in Men

Appointments

ARMSTRONG, J R, M D Belf, F R C S, registrar at the fracture clinic and orthopædic department of Charing Cross Hospital, London

***COHEN, H M**, M.D Lpool, D P H, school medical officer for Sheffield

DOUGLAS, SHOLTO, M.B Dubl, D.M R E, assistant radiologist to St Anne's Skin and Cancer Hospital, Dublin

ERSKINE, DAVID, M D, D P H, hon dermatologist to the Dreadnought Seamen's Hospital, London

GLASS, MARGARET A, M B Glasg, D P H, assistant medical officer of health for Southall

GREENING, W P, M R C.S, surgical registrar at Charing Cross Hospital, London

HAY, J D, M D Lpool, M R C P, hon assistant physician to the Royal Liverpool Children's Hospital

HOCKEY, M E, M B Glasg, D P H, deputy county medical officer of health for Herefordshire

McCASH, MARGARET S.L, M D Glasg, senior assistant maternity and child welfare officer for Stoke-on-Trent

MORLEY, M R, M B N Z, F R C S E, medical superintendent at the Tilbury Seamen's Hospital.

MURRAY, G B, M.B Edin, D.P H, medical officer of health for Chingford

RIPPINER, H A, M B Edin, F R C S E, M R C O G, junior obstetrician and gynæcologist at the Municipal General Hospital, Bradford

SALISBURY, C V., F R C S E, resident medical officer at the City of London Maternity Hospital

SUMMERHILL, J. H E, M.R C S, assistant resident medical officer at the City of London Maternity Hospital

SUTHERLAND-RAWLINGS, ERIC, M.R C S, hon physician to the Western Skin Hospital, London

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* Subject to confirmation

WALMSLEY G H C, M B Manc D P H , assistant county medical officer for Dorset

WINGFIELD, A L , M D Lond , M R C P , physician with charge of outpatients to the Dreadnought Seamen s Hospital, London

Examining Surgeon under the Factories Act, 1937 Dr W **SHIPTON** (Buxton District, Derby)

Medical Referees under the Workmen's Compensation Act 1925 Dr Z M H Ross of Fulwell Sunderland, and Dr W G **WAUGH** of Sunderland for the Seaham Harbour and Sunderland County Court Districts (Circuit No 1) and the Durham County Court District (Circuit No 2)

Vacancies

For further information refer to the advertisement columns

Army Dental Corps —Dental surgeons

Ashford, Kent, Grosvenor Sanatorium —Second asst res M O , £350 Also res H P , at rate of £100

Aylesbury Bucks Mental Hosp , Stone —Asst M O £350

Bedford County Hosp —Sen H S and Cas O , each at rate of £150

Belgrave Hosp for Women, Clapham Road S W 9 —Two H P 's, and H S , each at rate of £100

Birmingham City Maternity and Child Welfare Dept —Temp M O 's, £10 per week.

Bradford, Municipal General Hosp , St Luke s —Med supt £1100

Bradford City —Asst school M O £500

Bradford Royal Infirmary —Two H P s and five H S 's, each at rate of £150

Brighton Royal Sussex County Hosp —Cas H S , £120

Burnley County Borough —Asst M O , £500

Bury County Borough —Asst M O H £500

Cambridge Addenbrooke's Hosp —H P at rate of £130 Also hon surgeon

Cambridge, Department of Physiology —George Henry Lewis studentship £250

Colchester, Essex County Hosp —Asst H S , £120

Croydon General Hosp —Cas H S £125

Doncaster County Borough Council —Consultant obstetrician and gynæcologist £775

Doncaster Royal Infirmary —Res surg O and orthopædic H.S at rate of £250 and £150 respectively

Dudley Guest Hosp —Cas H S , £150

Edgware, Middlesex, Redhill County Hosp —Res cas M O , at rate of £350 Also two jun asst M O 's, each at rate of £250

Exeter, Wonford House Registered Hosp —Asst M O , £350

Exeter City Mental Hosp —Med supt £750 Also asst M O £400

Guildford Royal Surrey County Hosp —H P and cas O , at rate of £150

Hornsey Borough —Temporary part time M O £400

Hosp for Consumption, &c Brompton S W 3 —Res surg O , £150 Asst res M O , at rate of £150 Also three H P 's, each at rate of £50

Hosp of St John and St Elizabeth, 60, *Grove End Road N W 8* Res H S at rate of £75

Hull Royal Infirmary —Second H S at rate of £150

Ilford, King George Hosp —Res anæsthetist, at rate of £150

Iraq Government —Asst. port health officer 70 dinars a month

Lancaster, Royal Albert Institution for the Feeble-minded —Res jun asst M.O , £375

Leicester Royal Infirmary —Radiotherapeutist, £500 Also hon. asst surgeon, 100 guineas

London Chest Hosp , Victoria Park E 2 —H P at rate of £100 Also physician to inpatients

London Child Guidance Clinic 1 *Canonbury Place, N* 1.—Three Fellowships in Psychiatry, each £300

Lindsey County Council, &c —Obstetric and gynæcological consultant £700

Manchester, Baguley Sanatorium —Jun asst M O at rate of £250

Manchester Ear Hosp , Grosvenor Square —H S , at rate of £150

Manchester Northern Hosp Cheetham Hill Road —Res surg O , at rate of £200

Manchester Royal Children s Hosp , Pendlebury —Asst. M O to outpatients' dept at rate of £150

Manchester Royal Infirmary —Two H S 's to spec depts , each at rate of £50

Medical Research Council, 38 *Old Queen Street, S W* 1 —Kathleen Schlesinger research fellowship £300

Metropolitan Hosp , Kingsland Road E 8 —Sen and jun H P 's and H S 's each at rate of £100

Middlesex Hosp , W 1 —Res M O , £400

National Hosp for Diseases of the Heart, Westmoreland Street W 1 —Res M O , and outpatient M.O , at rate of £150 and £125 respectively

Newcastle-upon Tyne City and County —Maternity officer £800

Newcastle upon Tyne, Royal Victoria Infirmary —Jun. surg reg , £150

Newport County Borough —Asst M O H £600

North Riding of Yorkshire County Council, &c —M O H and asst. to county M O H , £800

Norwich City —Asst M O H and asst school M O &c , £600

Oldham Royal Infirmary —Sen H S , at rate of £250–£300

Paddington Green Children s Hosp , W 2 —H P and H S. each at rate of £150

Plymouth City and Port —Asst M O H , [illegible]

Portsmouth, Saint Mary s Hosp —Jun. asst res M O , £250

Portsmouth and Southern Counties Eye and Ear Hosp , Pembroke Road —H S £150

Preston and County of Lancaster Queen Victoria Royal Infirmary H S to eye and ear nose and throat depts , at rate of £150

Princess Beatrice Hosp , Earl s Court, S W 5 —Hon clin asst to outpatients' dept

Queen Mary's Hosp for the East End Stratford, E 15 —Registrar to ear, nose and throat dept , 50 guineas

Royal Army Medical Corps.—Commissions.

Royal Eye Hosp , St George's Circus, S E 1 —Refractionist to L C C children's dept , and clin. asst., £80 and £20 respectively

Royal Naval Medical Service.—M O 's.

St Albans County Institution Osler House —H S £175

St Bartholomew s Hosp E C 1.—Physician accoucheur

St John's Hosp , Lewisham, S E 13 —Orthopædic registrar 35 guineas

St Thomas s Hosp —Asst director of radiotherapy Also sen and jun radiologists £600 and £400 respectively

Southend Municipal Hosp —Asst M O , £325

Southend-on Sea General Hosp —Res obstet. officer, at rate of £100

Stockton-on Tees Durham County Mental Hosp —Locum tenens asst M.O , 1 guinea a day

Stoke-on Trent North Staffordshire Royal Infirmary —H.S to orthopædic dept , at rate of £150

Swanley, Kent Hosp Convalescent Home, Parkwood —Res M O , at rate of £200

Swansea County Borough —Asst M O H and asst school M.O., £500

Swansea General and Eye Hosp —Cas O at rate of £150–£175

Tilbury Hosp , Essex —H.S , at rate of £140

Ventnor, Isle of Wight, Royal National Hosp for Consumption, &c Asst res M O , at rate of £250

Victoria Hosp for Children Tite Street, Chelsea S W 3 —Ophth surgeon and second orthopædic surgeon Also cas O , at rate of £200

West Bromwich Hallam Hosp —Two asst. M O 's each at rate of £200

West London Hosp , Hammersmith, W 6 —Res cas O , at rate of £100 Also asst physician.

Woolwich and District War Memorial Hosp , Shooters Hill, S E 18 Res med reg and res. pathologist at rate of £150

The Chief Inspector of Factories announces vacancies for Examining Factory Surgeons at Daventry (Northampton) and Oldham, East (Lancashire)

Births, Marriages and Deaths

BIRTHS

ANTHONY —On March 13, at Takapuna, Auckland, New Zealand, the wife of Surgeon Commander R. G Anthony, R N —a son

CONYERS.—On March 18, in York, the wife of Mr J H Conyers, F R C.S —a son

FAGGE —On March 20, at Braintree, the wife of Dr C Hilton Fagge—a son

FAISON —On March 13, in Edinburgh, the wife of Dr J B Faison—a son

HEATHCOTE —On March 18, the wife of Dr A A Heathcote, Newport Isle of Wight—a son

HEWLINGS —On March 9, at Banbury, the wife of Dr Pat Hewlings—a daughter

KEMPTHORNE.—On March 18 at Simonstown, South Africa the wife of Surgeon Lieut -Commander H de B Kempthorne R N —a daughter

McDOWALL —On March 14 at Emsworth, the wife of Dr E B McDowall—a son

MORLEY —On March 18, at St John s Wood, N W 8 the wife of Dr H Seaward Morley—a son

NICOL.—On March 19 at Llandudno, the wife of Dr A Sinclair Nicol—a daughter

PRIEST —On March 17 at Collingham Gardens S W 5 the wife of Dr W H Dickinson Priest—two sons

ROBERTS —On March 18, the wife of Dr O W Roberts—a daughter

ROSE —On March 13, at Langho, near Blackburn the wife of Dr D J Rose—a daughter

MARRIAGES

O MALLEY—POINTON —On March 18, at St Ambrose s Church Kidderminster, Peter O Malley, M B to Mabel Margaret Pointon

DEATHS

CAIRNS —On March 15, at Northampton Thomas Cairns L R C P I , aged 70

CUMBERLIDGE.—On March 20 at Leicester William Isaac Cumberlidge M B Camb , F R.C S

DAMER PRIEST —On March 16, at Rhayader James Damer Priest, M R C.S , L.S A , late of Waltham Abbey and Eastbourne aged 81

JOHNSON —On March 17, at Heathgate N W 11 Harold [illegible] Johnson, O B E M B Lond , aged 80

JOYCE.—On March 18, at Reading James Leonard Joyce F R C.S aged 57

LANGFORD-JONES —On March 18 at Whetstone Robert Percival Langford Jones M B Lond , aged 47

LUNN —On March 18, in London Sir Henry Simpson Lunn M D Dubl , aged 79

O CONNOR —On March 15, at Monte Carlo, Lieut -Colonel Patrick Fenelon O'Connor, C B M D R.U I , I M S (retd) aged 82

RISIEN RUSSELL.—On March 20 at Wimpole Street W 1, J S Risien Russell, M D Edin , F R.C P

N.B —A fee of 7s. 6d. is charged for the insertion of Notices of Births Marriages and Deaths

NOTES, COMMENTS, AND ABSTRACTS

SULPHANILAMIDE AND WAR WOUNDS

THE surgical treatment of infected wounds will often henceforth be combined with chemotherapy. In Spain d'Harcourt, Folch Pi, and Oriol have treated with sulphanilamide 13 patients whose wounds had led to septicæmia and for whom nothing further could be done in the way of local treatment (*Rev Sanidad Guerra*, July-August, 1938, p. 246) Of these, 8 made a complete recovery, 2 died, and 3 were still under treatment at the time of the report. Most of the wounds were due to shrapnel, and two of them included open pneumothorax with hæmothorax. One of these produced a pure culture of streptococcus; costal resection and pleurotomy were performed, and the patient was in a very bad condition Sulphanilamide was given, and in three weeks from admission to hospital he was completely cured of infection and on the way to resuming a normal life The other patient likewise had a streptococcal infection of the hæmothorax and made a similar recovery under sulphanilamide therapy. These two cases are interesting because the cure of a hæmothorax infected by streptococci is ordinarily very difficult The authors also report a rapid recovery from subperitoneal cellulitis due to an infected inguinal hernia. Three cases of gas gangrene, from each of which was cultured *B perfringens*, were also treated with sulphanilamide, one patient being cured and two dying. The two who died had received multiple injuries, including several fractures, and one of them had begun to improve and was progressing well when he fell out of bed in his sleep, doing much damage to his immobilised limbs, from which he died

D'Harcourt and his co-workers gave the drug by mouth and suggest a dose of 1 gramme three or four times a day for the first 4–6 days, and then only two doses a day for a much longer time. With each dose they also gave the patient Vichy water and 1 gramme of bicarbonate. The dosage was controlled by repeated estimations of sulphanilamide in the blood. The complications observed included a severe case of jaundice; but they did not withdraw the drug, and the patient survived. Occasionally there was diarrhœa or vomiting, which disappeared when the drug was temporarily withdrawn. Since it has been stated that anæmia is a contra-indication to sulphanilamide therapy, the present authors emphasise that most of their patients were very anæmic on account both of their wounds and their hæmolytic streptococcal infection, and that they observed no ill effects on the blood—no increase of anæmia, no hæmoglobinæmia, and no agranulocytosis The lack of such complications they attribute to the fact that they gave blood-transfusions repeatedly.

THE ESCAPE INTO PSYCHOSIS

AT a meeting of the Medical Society of Individual Psychology on March 9, with Dr H C Squires in the chair Dr R. D. Gillespie remarked that the idea of mental illness as a flight or escape had captured the popular imagination. The conception was simple and sometimes fairly accurate. In so far as it fitted in with the more general conception of mental illness as a failure of adaptation it was scientific; but in so far as it implied purpose it was much less obviously so A purpose had to be the purpose of something Purpose was easier to understand as a function of the ego; but in many a psychosis it was emphatically not the ego that was responsible. In fact the impression obtained from the psychotic mental content was more often that of the ego being overwhelmed by something foreign to it than of the ego's willing "escape" from anything. In such cases the ego looked on helplessly; if escape were possible it would be from the surging inner pressure of emotions and desires, but the latter would out, and reality was not so much escaped from as supplanted. There were two kinds of reality, one outer and one inner, one public and one private The ego had been well said to face two ways: outwards to the external world and inwards towards the innate impulses and desires, some of them acknowledged, some of them not Mental escape therefore had to be considered as an escape from external and from internal reality. Possibly only the former might rightly be called psychotic.

RAILWAY TRANSPORT FOR INVALIDS

WHEELED chairs, stretchers, and special trains have long been available for invalids wishing to travel by rail, as every medical practitioner surely knows, but the extent of facilities for invalids is not perhaps generally realised For instance, the Great Western Railway informs us that it maintains a stock of special saloons each fitted with a couch suspended from the roof to avoid oscillation, together with accommodation for nurses and cooking apparatus for the preparation of food on the journey. These coaches have large double doors, so that the patient can be lifted straight out of an ambulance into the train.

The same company has also adopted the Parratt stretcher, invented by a carriage cleaner of that name at Taunton, as we noted in 1934. This stretcher is intended to provide a "bed to bed" service between home and hospital It can be lifted in and out of an ordinary railway compartment or ambulance and rests along one seat, leaving the other free for an attendant or relation. It can also be fitted to an ordinary stretcher, and its handles can slide in flush with the ends of the stretcher to negotiate awkward corners and stairways.

COBRA VENOM FOR DYSMENORRHŒA

THE venom of the cobra *Crotalus terrificus* has been used by H. Duék in the treatment of dysmenorrhœa (*Hora med.* December, 1938, p. 65) It was given mainly in the premenstrual period but also occasionally in the intermenstrual period if the patient complained of excessive pain. Its effects were noticeable some 6–8 hours after intradermal injection, and after about three months' treatment the dysmenorrhœa was improved in the eight cases reported. The treatment, however, is only palliative. No toxic effects were observed, and the patients continued at their ordinary work.

THE DEATH OF CLAUDIUS

Dr. PARKES WEBER writes: In my remarks at the Medical Society of London reported in your last issue (p. 635) I referred not (as you say) to the death of Nero but to that of the Emperor Claudius I, A D 54 According to Tacitus the Empress Agrippina junior (mother of Nero) was supposed to have poisoned him Rumour suggested that the court-physician Xenophon, of Cos, pretending to assist Claudius to vomit, introduced fresh poison on the quill with which he tickled the fauces Claudius died within 24 hours Xenophon's portrait occurs on some small bronze coins of Cos of the first and second centuries.

CHEMOTHERAPY IN SMALLPOX—The use of Prontosil rubrum in a case of smallpox is reported by C. King and K A. de Rozario (*J. R. Army med Cps* December, 1938, p. 401) Administration of the drug was begun on the fifth day after the onset, as near to the beginning of the pustular stage as could be judged The secondary rise of temperature that is almost always present in this disease did not take place

CORRIGENDUM—In our account of The Clinic on March 11 (p. 591) the charge for rooms was said to include theatre fees This is incorrect; there is a charge of 1½–5 guineas for the use of the theatre

ADDRESSES AND ORIGINAL ARTICLES

THE AERIAL SPREAD OF STREPTOCOCCAL INFECTIONS

BY R CRUICKSHANK, M D Aberd, D P H

AND

G E GODBER, B M Oxfd, M R C P, D P H

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MEDICAL opinion on the mode of spread of infectious diseases has changed considerably since the beginning of the present century In particular, the recognition of the human carrier as a reservoir of infection has helped to explain many anomalies and to dispel old notions about the dangers of miasmas, sewer-gases, and the like As regards the diseases in which the causal organism has its entry and exit by the respiratory tract, belief in a widespread aerial transmission of the *materies morbi*, of which Power (1880–81) from his smallpox studies at the Fulham Hospital was such a strong advocate, has given place to something requiring much more intimate contact between the infective person, whether clinical case or carrier, and the susceptible individual The studies of Flügge (1897, 1899) and his pupils[1] were in great part responsible for this volte face, these workers, although they confirmed the fact that micro-organisms were transported considerable distances in dust by fine air currents and proved that bacteria artificially introduced into the mouth could be recovered four to nine metres from the individual after coughing or sneezing, failed in experiments with infective tuberculous patients to demonstrate the pathogens in any numbers at a distance of more than one metre from the coughing patient The additional finding that guineapigs could be infected by direct exposure to a tuberculous patient but much less easily by inhaling dried sputum gave further support to Flügge's opinion that infections of the respiratory tract were principally spread by what he called the "spray" or "droplet" method

This doctrine was gradually put to the test of practical experience Medical superintendents who, following the French pioneers, had proved the effectiveness of cell or cubicle for preventing the spread of most infections now began to try other less tangible (and less expensive) methods of controlling cross infection, particularly in fever hospitals About 1908 Biernacki at the Plaistow Hospital introduced "barrier" nursing, which means the isolation of a patient in a ward by a visible (screens) or invisible barrier, involving precautionary measures by a trained nursing staff to prevent the spreading or carrying of infective material from the isolated patient to his neighbours Crookshank (1910) at the Barnes Hospital, Mortlake, was the first to practise a modified system of "bed isolation," a system which was considerably, and independently, extended and popularised by Rundle and his assistants at the Fazakerley Hospital, Liverpool Bed isolation is simply the application of barrier nursing with or without screens to every patient in the ward, so that a variety of infectious diseases may be nursed side by side with little risk of cross infection In their original experiment Rundle and Burton[2] (1912) placed in two small wards, each containing 12–13 beds, cases of puerperal fever, erysipelas, pertussis, chickenpox, rubella, doubtful scarlet fever and diphtheria, and convalescent measles, and during a period of two years with a turnover of 473 patients there were only two secondary cases of scarlet fever Despite the fact, now generally admitted, that patients in the early stage of measles or chickenpox cannot be nursed in barrier or bed isolation wards without the risk of secondary cases, the success of these methods was, and still is, a strong argument in favour of the limited droplet spread of infections of the respiratory tract This view was fully endorsed by Chapin (1910, 1912), who marshalled all the arguments in favour of contact and droplet infection and against the aerial spread of pathogens, whether of respiratory or intestinal origin On the surgical side, too, there has been a gradual change from Lister's carbolic sprays to prevent contamination from the air through a more localised antiseptic technique to the present "aseptic" methods, indicating an absence of fear of wound infection from aerial sources

Previous Evidence of Air-borne Infection

Interest in the possibility of the aerial spread of pathogenic bacteria was apparently reawakened after one of us (Cruickshank 1935) showed that most third degree burns became infected with the hæmolytic streptococcus after admission of the patient to hospital, and that both the dust and the air of the ward contained numerous hæmolytic streptococci and were thus a possible means of conveying infection from patient to patient This possibility was made the more probable when Dr V D Allison, to whom cultures were sent for typing, found that strains isolated from eight patients in one ward over a period of three weeks were all of one serological type (type 4), and in another instance a culture recovered from the air of the ward belonged to the same rather rare type (type 23) as a strain isolated from the infected burn of a man in the ward at the time

The finding of living pathogens in dust, particularly if protected from sunlight, is no new thing, Washbourn and Eyre in 1902 recovered the rather delicate pneumococcus from the dust of ward and laboratory, and even Chapin admitted that the germs of typhoid, dysentery, diphtheria, tuberculosis, and suppuration could, if their resistance to drying were a guide, be spread by dust Apart from viability, we know of no direct evidence that the virulence of bacteria is, as is sometimes stated, diminished by drying in the air or dust, drying *in vacuo* is now the most reliable method for maintaining both viability and virulence Recently L Colebrook (see White 1936) has shown that hæmolytic streptococci will remain viable in dust for at least 10 weeks and their mouse virulence persist undiminished for 25 days That these dust-borne organisms may be derived *from infective discharges* as well as from the respiratory tract was confirmed by White (1936) who found hæmolytic streptococci in varying numbers in the dust of single rooms where patients with streptococcal puerperal infection were being nursed, the streptococcus isolated from the dust was usually of the same serological type as the patient's strain She quoted an instance of infection borne by dust or air: a person contracted a streptococcal pharyngitis after sweeping out the room vacated five days previously by a puerperal patient with whom she had had no direct contact; the two infecting strains were identical in type

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[1] Winslow and Robinson (1910) give a useful summary, and many corroborative experiments of the early work on aerial and droplet spread of bacteria

[2] This publication was followed by a lively and enlightening discussion in the correspondence columns of THE LANCET, in which Biernacki, Crookshank, Thomson and Burton were engaged

In the following year Brown and Allison (1937) reported an investigation on the isolation of hæmolytic streptococci from the air of scarlet-fever wards. Their results proved that streptococci of the types commonly associated with scarlet fever were plentiful in the air of these wards, and, where throat swabs from the patients were simultaneously examined, the strains isolated from the two sources (patients and air) were very similar both in serological type and in the relative proportions of the various types They found, as White and we have done, that disturbance of the air by dusting and sweeping increases considerably the number of organisms recoverable from the air by the method commonly used—namely, the exposure of blood-agar plates for a limited period two or three feet from the ground. Such a finding does not necessarily mean that the air is free from pathogens when none are found on the exposed plates (vide infra) but shows that some of the infected dust particles after being disturbed and circulated in the air by dusting or sweeping settle on the exposed plates

In the light of these recent bacteriological findings much of the earlier epidemiological work—e g, the data given by Dudley (1926)—could be explained as well on the basis of the aerial spread of pathogens as on a combination of droplet infection and carriers. It may be mentioned in passing that, on the surgical side, the recent investigations of Hart (1937) and Cowan (1938) have attested to the risk of air-borne infection in the theatre during the performance of protracted operations, such as modern surgery of the chest or of the brain involves

Although Flügge's views on the limited spread of infective material from the respiratory tract have been generally accepted, the epidemiologist has usually found some difficulty in explaining on this view the almost inevitable spread of measles and chickenpox in a ward of susceptible children after the introduction of a case in the early stage of the disease. Thomson (1916), after two and a half years' experience with a barrier ward, concluded that these infections must be air-borne, and there is some recent support for his belief in Colvin's (1932) experiments with another virus, bacteriophage, which after being atomised could be recovered some 53 metres distant Harries (1935), on the other hand, is inclined to the view that these infections are spread by the contaminated hands of the attendants, and he has adduced much evidence in favour of the manual transference of infections generally.

The work of Wells and his associates (see Wells and Wells 1936), begun in Boston and now being continued in a special unit at the University of Pennsylvania, Philadelphia, has shown that the aerial spread of bacteria and viruses is at least a theoretical possibility. Wells's view, based on much experimental work, is that all droplets expelled from the respiratory tract by coughing or sneezing do not necessarily fall to the ground like rain within a few feet of the individual. The droplets become smaller by evaporation, the ratio of surface to weight increases as the size diminishes, and the particles fall more and more slowly. Wells estimated that droplets of 0 1 mm diameter will, by the time they drop the height of a man, become so small that they remain suspended in the air like particles of smoke. Droplets which do settle may by evaporation become so small as to be lifted into the air again. The rôle of these "droplet nuclei" in spreading infection will depend largely on the viability and concentration of the organisms they contain. Using a special chamber in which suspensions of bacteria could be atomised, Wells found that certain organisms present in the respiratory tract—e g, pneumococcus type I, hæmolytic streptococcus, and *Streptococcus viridans*—remained viable for two days (*B. influenzæ* was very short-lived), whereas intestinal bacteria (*B. coli*, *B. typhosus*, *B. paratyphosus* A, and *B. dysenteriæ* Y) did not survive eight hours. Since these droplet nuclei do not tend to settle like larger droplets or dust particles, exposed plates of culture media do not give an accurate count of their numbers in the atmosphere, and Wells (1933) therefore devised an air centrifuge for this purpose. He suggested that *Str. viridans*, an organism ordinarily present in the upper respiratory tract, might be used as an index of air pollution, as *B. coli* is used for water. This is not entirely a new idea, for, apart from Pasteur's classical experiments, Gordon (1902–03) made a similar suggestion and showed that mouth bacteria could be recovered from the air in any part of a room in which people were talking; he made a simple type of air-suction apparatus for estimating the degree of bacterial air-pollution. Wells's experiments have demonstrated how the aerial suspension of bacteria comes about, and his work has obviously an important bearing on the problem of the spread of infectious diseases

Present Evidence of Air-borne Infection

Our own studies were begun in the winter of 1936 and consist mainly of combined clinical, bacteriological, and epidemiological investigations into (1) two small outbreaks of puerperal sepsis and (2) streptococcal infections in wards of children admitted with diphtheria An example of each will be given in some detail and brief reference made to some of the others The serological typing of hæmolytic streptococci (see Griffith 1934, Neisser 1939) isolated from clinical case, carrier, air, or dust has been an integral part of the work, since only thus could we hope to trace the source and mode of spread of the infecting or "epidemic" streptococcus, for the mere discovery of a hæmolytic streptococcus does not help either to incriminate or to exculpate the source unless the group and serological type are known. During the past two years other outbreaks have been studied in which the evidence did not suggest an aerial spread

AIR-BORNE PUERPERAL INFECTION

The outbreak to be described occurred in the maternity ward of a general hospital and concerns six patients, three of whom developed local uterine sepsis and three others became streptococcus cervical carriers or at most suffered from very mild genital-tract infections The first patient discovered to have a puerperal infection with the hæmolytic streptococcus was A. B., who was admitted and delivered on Aug. 21; her temperature, which was raised on admission, did not settle, and on Aug. 23 culture of a cervical swab gave a practically pure growth of type 25 *Str. pyogenes*. [The name *Str. pyogenes* is reserved for hæmolytic streptococci belonging to group A (Lancefield).] On the same day the patient was isolated in a separate ward and transferred next day to an isolation hospital. Since none of the attendants of this patient was found to be carrying hæmolytic streptococci in the nose or throat, and since she was febrile on admission with membranes ruptured, it is possible that the infecting organism was introduced to the unit by her. It is important to note that she lay in the main maternity ward for 36 hours after delivery The next two patients to be infected were C D and E F admitted to the maternity ward on Aug 18 and 22 and delivered in different labour wards and by different nurses on Aug 23 and 24 respectively These patients became febrile—and were isolated—on the 25th, and cervical swabs on that date gave practically pure cultures of type 25 *Str pyogenes* They were transferred to the isolation hospital next day C D and three other patients with raised temperatures had been moved into a small four-bedded ward on the 25th Vaginal swabs of the latter three patients, taken on that day, were negative, but two days later in a general reswabbing hæmolytic streptococci (type 25) were recovered from two of them neither of whom showed any clinical signs of infection A patient in the main ward was similarly found to be a vaginal carrier of the epidemic type These three patients, although afebrile and therefore not notified, continued to carry hæmolytic streptococci in the genital tract during their stay in hospital They were, of course, kept in isolation

As the same serological type of hæmolytic streptococcus was present in all cases, obviously the infecting organism must have been carried by some means from patient to patient The more obvious routes by which such infection may spread are (1) by human throat or nose carrier, (2) by infected instruments or gloves during the ritual of nursing, and (3) by the dust and atmosphere of the ward

(1) The noses and throats of the nursing staff of the main maternity ward were swabbed on Aug 24, the medical staff on the 25th, and the nurses in the small ward on the 25th and 31st None of the medical and nursing staff who attended the infected patients was found to be carrying group A (Lancefield) hæmolytic streptococcus, there was no common attendant responsible for the confinements of these cases

(2) The transference of infection by the hands (gloved or ungloved) of attendant nurses or by instruments or bedpans has probably often played its part in the spread of puerperal infection, but the aseptic and antiseptic precautions taken by the doctor, sister, and staff of the maternity unit make such a method of spread practically impossible in this outbreak Besides, the originally infected patient was removed from the ward before the others were confined, and infection rarely occurs before confinement

(3) As regards air-borne infection, blood-agar plates were exposed in the two labour wards on Aug 26 with negative results Plates were not exposed in the large and small maternity wards until Sept 1 by which time the main ward had been disinfected The plates from that ward were negative, but hæmolytic streptococci of the epidemic type were present on the plates exposed in the small ward It will be remembered that the patient C D was removed from this ward on Aug 26, and that the cervical swabs of two other contact cases were negative on the 25th and positive on the 27th, hence the latter two cases may have "picked up" the infecting streptococcus on the day *after* C D was removed—i e, they probably became infected not by direct transference from another patient but from the dust or atmosphere of the ward The evidence in favour of this mode of spread is even stronger in the case of the patients in the main ward, who, although in contact with A B the original case for periods of a few hours to two days before their delivery almost certainly became infected in the main ward after confinement If so, there was no chance of direct transference of the infecting organism, since A B was removed from the ward before any of the other infected women were delivered and presumably, therefore infection was derived from an atmosphere already contaminated with hæmolytic streptococci through the presence in the ward for two days of the originally infected patient The genital tract immediately after delivery presents a large abraded surface which, as has been shown in burns, is particularly susceptible to attack by the hæmolytic streptococcus Infection from the atmosphere may be direct, or the organism may lodge in the anterior nares after inhalation and be transferred to the genital tract by the patient's fingers

The points of special epidemiological interest in this small outbreak are (*a*) serological typing of the hæmolytic streptococci showed that all the patients were infected by one epidemic strain which was not discovered in the upper respiratory tract of any of the attendants on these patients, (*b*) the air and dust of the wards in which the patients lay was probably the means by which the infecting organism was spread, and (*c*) a number of patients were vaginal carriers of the hæmolytic streptococcus during the puerperium without showing any evidence of clinical infection, which justifies a bacteriological examination of the genital tract of all patient contacts in any institutional outbreak of puerperal sepsis

Another small epidemic in which the evidence pointed to the air or dust as the vehicle of infection occurred in a well administered maternity home with a resident medical officer The outbreak, which included three cases of puerperal infection and three of tonsillitis, was originated by nurse A, who after a sore throat was allowed back on duty on the strength of one negative throat swab A fortnight later she delivered Mrs X, who became febrile two days after confinement and was transferred to an isolation hospital with a streptococcal uterine sepsis

Within ten days of her removal two more cases of puerperal infection occurred in two different wards (The wards in this home each contained four to six beds) These two patients were delivered in separate labour rooms, and neither of them was attended at confinement or at any time in the puerperium by nurse A, who like the rest of the staff always wore a mask when on duty

Although nurse A was suspected of being the source of the first case she continued doing certain ward duties, because several throat swabs had been reported negative However, when reswabbed by one of us, she was found to be a streptococcal carrier and was taken off duty Four days later the matron and linen maid developed streptococcal tonsillitis

All the strains of hæmolytic streptococcus isolated from these cases belonged to one serological type (type 25) The whole nursing staff was swabbed after the first case of puerperal infection and again on the day that the two cases of tonsillitis occurred, no carrier of the epidemic streptococcus—other than nurse A—was discovered Blood-agar plates exposed in the labour rooms and various wards after they had been disinfected, did not detect any hæmolytic streptococci in the atmosphere

If these observations are pieced together, it may be claimed that, apart from the first case, the infecting organism could not have been transferred directly from carrier to patient or from patient to patient The nursing technique was of a high standard, and every precautionary measure was being taken to prevent the spread of infection by mediate means Further, the occurrence of two clinical cases of infection some days after the only carrier of the epidemic streptococcus was taken off duty pointed to some other reservoir for the infecting organism, that this was probably the infected dust or air of the wards is supported by the fact that these were infections of the upper respiratory tract Direct evidence of an aerial source could not be obtained because the wards were disinfected before the atmosphere was bacteriologically examined

STREPTOCOCCAL INFECTION IN A DIPHTHERIA WARD

The ward had been open for three months for the accommodation of mild or moderately severe cases of diphtheria, mostly in young children. During this period none of the patients had had otitis media or any other streptococcal complication. Chickenpox was introduced, and the ward was in quarantine up to Dec. 16. It was then rapidly filled

On the 18th a child was admitted to a corner bed with a condition clinically quinsy and subsequently proved not to be diphtheria; *Str. pyogenes* type 12 was isolated in culture from his throat Within the next ten days three children in nearby beds developed otorrhœa, and from each of them *Str. pyogenes* type 12 was recovered Another child had tonsillitis, but cultures were not taken.

After this brief outbreak admissions to the ward ceased because of a fresh case of chickenpox, which was removed to a cubicle and returned to the ward on Jan 14. This was a signal for a new and more extensive wave of infection The child on readmission had a raised temperature and was noted to be developing tonsillitis He had a severe attack with marked adenitis, and *Str. pyogenes* type 6 was isolated from his throat.

During the next week two patients developed otorrhœa and one tonsillitis, and from each case the same serological type of streptococcus (type 6) was obtained. One of the cases of otorrhœa was the boy who had originally introduced the type 12 infection, and he went on to a severe mastoiditis.

At this point swabs were taken from nose and throat of each child in the ward Of seventeen patients, thirteen had hæmolytic streptococci in nose, throat, or both, and in eight of them the nose culture was positive It may have been mere coincidence that the four negative cases were the only four Dick-negative children. Nose and throat swabs of the nursing staff of the ward yielded only one scanty positive throat culture (3 colonies) which could not be typed.

At the same time blood-agar plates were exposed in two batches of four—the first batch from 8 P.M. to 7 A.M. and the second from 7 to 9 A.M. The plates were placed on lockers 9 in above the bed heads and out of the patients' reach. The batch exposed from 8 P.M to 7 A M grew 23 colonies of hæmolytic streptococcus, and those exposed from 7 to 9 A.M. grew 49. Thus there were twice as many colonies on the plates exposed for two hours in the morning during the sweeping and dusting as there were during eleven hours throughout the night; two-thirds of the colonies were on the four plates at the end of the ward where most of the infection had occurred. Random subcultures from these plates, when examined serologically, were all type 6.

Quarantine for chickenpox ended on Jan. 21, and there was an influx of new patients. One of these had a recent otorrhœa, which was shown to be due to *Str. pyogenes* type 28, and during the ensuing week another child had otorrhœa due to type 28. New patients continued to be admitted to the ward, and among them after admission there occurred four cases of tonsillitis, three of otorrhœa, and one of vaginitis; all were streptococcal infections In three the infecting streptococcus was type 6 and in two type 12; the others were not typed. The child with vaginitis had type 6 in throat and vagina but no clinical signs in the throat.

On Feb. 10 plates were again exposed in the ward and nose and throat swabs were taken as before. Of fifteen patients, only two were negative, twelve had hæmolytic streptococci in the faucial and eight in the nasal swab. On the eight plates exposed 224 colonies of hæmolytic streptococcus were found, 90 being on one plate Random pickings gave cultures of *Str. pyogenes* type 12. For comparison, eight plates were exposed in a whooping-cough ward under similar conditions, and no hæmolytic streptococci were grown; nose and throat swabs in this ward yielded one doubtful positive.

After Feb. 25 no new patients were admitted, and the numbers were reduced by discharges; but one patient developed tonsillitis, one otorrhœa, and two others otitis media without discharge; in each case type 6 was the infecting streptococcus. Finally, the child who six weeks earlier had a vaginitis due to *Str. pyogenes* type 6 developed scarlet fever, and again cultures from her throat yielded type 6. The ward was closed at the end of March.

This outbreak of streptococcal infection shows two epidemic waves coinciding with the introduction of the two infecting streptococcal types by patients with faucial infection The first with type 12 was brief and quickly died down, possibly because the ward was in quarantine and its population unchanged On the introduction of the second infecting type there was another wave, principally affecting those who had escaped the first attack Afterwards newly admitted patients sustained the bulk of the infection, a state of affairs very similar to experimental epidemic infections in mice, in which the epidemic is maintained by the regular addition of susceptible animals

Direct droplet infection from patient to patient may be ruled out, since all the children were in bed and the beds were adequately spaced. Similarly, droplet spread from nurse to patient could not occur as none of the staff was a carrier of the epidemic types Manual transference by nurses or spread by fomites cannot be altogether excluded (there was a communal toy-box), but there was no routine case-to case hygiene of the nose and swabbing of ears was confined to those children with otorrhœa It should be remembered that these are infections of the respiratory tract—even in the ear infections the organism presumably gains entrance by this route—and of the two possibilities infected air is surely a more likely source than toys or the contaminated hands of nursing staff Incidentally, the healthy skin is definitely bactericidal

An aerial source is suggested by the fact that hæmolytic streptococci belonging to the two epidemic types were present on plates exposed to the air of the ward and were most numerous where the brunt of the infection occurred and after the dust of the ward had been stirred up There was also an apparent increase in the degree of streptococcal air-pollution as the epidemic continued—72 colonies of hæmolytic streptococci on the first exposure and 224 a month later. On two occasions 76 per cent. and 86 per cent of the children in the ward had hæmolytic streptococci in nose or throat or both. In more than half the cases the organism was numerously present in the nasal culture, a rare finding in the absence of nasal discharge, which strongly suggests that the streptococcus got there by inhalation of the contaminated air and dust Allison (1938) on the basis of figures (of the number of streptococcal colonies on exposed plates) similar to our own has calculated that the air of such an infected ward must contain an astronomical number of hæmolytic streptococci, and, when it is remembered that each child is inhaling some 13 cubic feet of air per hour, "it does not need much stretch of the imagination to accept the view that infection by particles in the air is no chimera"

Cross-infection with scarlet fever is not uncommon in diphtheria wards Three cases occurred in a particular ward within a period of three days; eight days after the first case nose and throat swabs were taken from all the children and staff in the ward, and six blood-agar plates were exposed for two hours on the following morning

Apart from the patients with scarlet fever, two of whom were infected with *Str. pyogenes* type 3 (the third was not typed), seven of the fifteen children in the ward were found to be streptococcal carriers; in six the streptococcus was recovered in practically pure culture from the nasal swab. When serologically typed three of these carrier-strains belonged to type 3 and three to type 24; the seventh could not be typed. Two of the nurses were carrying hæmolytic streptococci: one type 13, the other "? type 13."

The six exposed plates grew a total of 48 colonies of hæmolytic streptococcus, and random pickings showed equal numbers (five each) of types 3 and 24. These findings are a repetition on a smaller scale of those already quoted and besides showing how quickly the infecting organisms are disseminated indicate that the air was the vehicle of spread.

It may be argued that these manifest or latent infections would not have happened in a bed isolation ward, which is designed mainly to prevent the spread of infection manually or by fomites. We have no desire to belittle the value of bed isolation methods, but we believe that part of their success is due to the fact that a bed isolation ward usually contains a variety of infectious diseases which help to dilute each other. Medical superintendents have admitted that, if such a ward is overloaded with infections due to a particular organism—e.g., the streptococcus—the barrier is apt to break down. An example of this kind may be quoted.

In a bed isolation ward cases of streptococcal infection—mostly tonsillitis and otorrhœa—predominated; one at least of these patients was infected with *Str. pyogenes* type 1 and one with type 6. A child some days after admission to the ward developed suppurative otitis media, which was found to be due to *Str. pyogenes* type 1, present in both throat and ear discharge. The whole staff was swabbed, and six blood-agar plates were exposed in the ward for three hours. Three streptococcal carriers were discovered among the nurses, the serological types being type 27 twice and type 14. There were 28 colonies of hæmolytic streptococcus on the exposed plates, and out of eight of these examined serologically seven were type 1 and one type 6. Thus the infecting strain was numerously present in the air but not in the nose or throat of possible carriers; hence, if the bed isolation ritual was being efficiently performed, aerial spread seems the only way in which cross-infection could have occurred.

Prevention of Air-borne Streptococcal Infection

The records and experiences of the past indicate that attempts to control institutional outbreaks of streptococcal infection by orthodox methods have not always been successful. MacGregor (1930) described an outbreak which necessitated the closing of the wards—no mention is made of disinfection—and which flared up again when the building was reopened with a new staff despite the enforcement of the strictest precautionary measures. As he says, "it is clear that the technique employed was still an ineffectual barrier against the spread of infection." We know of other similar happenings, and one lesson of the present outbreaks is the insufficiency of nursing methods which would preclude spread of infection by the accepted channels. Okell and Elliott (1936), after describing outbreaks of streptococcal infection in ear, nose, and throat wards, considered that the best methods of prevention were isolation of the infected patients on the balconies and behind screens *plus* the thorough cleansing of cubicles and wards after infection. As for similar infections in a general hospital, Keevil and Camps (1937) who recovered the infecting streptococcal types from the dust of the wards, found that the practice of all the accepted preventive measures did not check the spread of infection and finally adopted the procedure of transferring the streptococcal cases to the isolation hospital. Hart (1937) has recorded the difficulties in eliminating pathogenic bacteria from operating-theatres, short of sterilising the air.

These failures to control institutional outbreaks of streptococcal infection by orthodox methods point to some unconsidered factor which from the accumulated evidence we believe to be the infected dust and atmosphere. Bacterial pollution of the air may come about either by the aerial suspension of Wells's "droplet nuclei" expelled from the respiratory tract of the infective patient or by the stirring up of infected dust particles. Obviously, then, to counteract the aerial spread of bacteria, the air must be cleansed and the dust got rid of or rendered harmless. Two simple expedients are at hand. To clean the polluted air free ventilation is the easiest and probably most effective measure; it is particularly necessary in the winter months, when the risks of epidemic spread are greatest and the inclination to ventilate wards least. Its value in minimising cross infection in bed isolation and other wards was recently emphasised by McGarrity (1938). Damp dusting and sweeping and a more liberal use of soap and water are the best methods of dealing with dust, although their usage has gone out of fashion since the polished floor and polished furniture became popular in hospital wards. Their efficacy has been demonstrated in our experience by the negative findings on exposed blood agar plates in the main puerperal ward at the North Western Hospital. Probably not more effective and certainly more troublesome and expensive is the sterilisation of the air and dust by disinfectants—the latest of these are the spraying of the air and surfaces with aerosols and the use of ultraviolet light.

Other common sense measures for preventing the spread of infection must not be neglected. The clinical case and persistent carrier must be isolated, and it should not be forgotten that the patient with an infective discharge is as likely to be a source for streptococcal air pollution as the patient with an infection of the respiratory tract. Bed isolation wards should not be overloaded with one kind of infection, and there must be a strict observance of the technique—e.g., the communal use of toys, books, and pencils, a not uncommon practice in children's wards, must be prohibited. Again, after diphtheria and measles (Allison 1938) children are particularly susceptible to streptococcal infection, probably because of their age and lowered resistance; hence in wards where such children are being nursed a careful supervision of new cases is required to prevent the admission of patients with tonsillitis or otitis media. If such infection does gain a foothold, the infected patients should be removed and the ward put in quarantine until the spread has been controlled.

Another important factor in the aerial spread of infection is the viability of the *materies morbi* in dust or atmosphere; for example, the meningococcus has presumably a low viability, since adequate bed spacing is sufficient to reduce both the carrier rate of the organism and the incidence of cerebrospinal fever. Or, again the much greater likelihood of secondary infection in a ward after the introduction of measles as compared with pertussis is possibly associated with a greater viability of the measles virus, since the susceptibility of the child population to the two diseases is very similar. If such is the case, the measles virus can be aerially spread, whereas the pertussis germ although more *forcibly* expelled, would have a limited or droplet range of infectivity, which seems to fit the facts. Further work along the lines initiated by Wells will help to solve this and allied problems

Conclusions

Bacteriological and epidemiological observations on institutional outbreaks of puerperal sepsis and on streptococcal infections among children in diphtheria wards have convinced us that the aerial carriage of pathogenic bacteria can be an important factor in the spread of infection Cleansing of the polluted air by free ventilation and the removal of infected dust by damp sweeping and dusting are two simple and probably effective measures for the prevention of air-borne streptococcal infection. The following points also arise out of our studies :—

PUERPERAL SEPSIS

(1) Patient-contacts may become vaginal or cervical carriers of the epidemic streptococcus and if not sought out may act as foci for the maintenance and spread of the infection

(2) Just as a streptococcal sore-throat may be the source of an outbreak, so secondary cases of tonsillitis may occur concurrently with the infections of the genital tract.

(3) Great care in the taking of nose and throat swabs and provision for their proper bacteriological examination are required if potentially dangerous carriers are not to be missed

STREPTOCOCCAL INFECTION IN CHILDREN'S WARDS

(1) After such infections as diphtheria and measles children seem to be very susceptible to the streptococcus ; in these wards special precautions, indicated in the text, are required to prevent the admission, or control the spread, of streptococcal infection

(2) In the search for carriers nose as well as throat swabs should be taken, for more than half the contacts may be found to be nasal carriers

(3) Even when the air and dust of the ward are laden with streptococci, nurse-carriers of the epidemic strains are not common, owing, perhaps, to their greater resistance and the intermittency of their stay in the ward

We are indebted to Dr H. Neisser for help with the serological typing of the streptococci and to a number of clinical colleagues for facilities and help in collecting the material on which our observations are based.

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A RARE FEATURE OF THE RAMSAY HUNT SYNDROME

WITH SOME OBSERVATIONS ON THE SENSORY SYSTEM OF THE SEVENTH NERVE

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IT is some thirty years since Ramsay Hunt (1906) first described in detail the syndrome which bears his name. Before that date several observers, including Grüber as early as 1875, had published accounts of herpes of the auricle arising alone or in association with the facial palsy. But Ramsay Hunt was the first to correlate these clinical findings in a coördinated manner and with such completeness and accuracy that his original statements have undergone little alteration. A few minor adjustments have since been made, mostly by the same author, but their appearance has been spread over rather a lengthy period. It may, therefore, be of interest to give a brief résumé of the subject.

HUNT'S CLASSIFICATION

In his original description, Ramsay Hunt classified his findings as follows :—

THE SYNDROME AND ITS CLASSICAL TYPES

(*a*) Herpes oticus

(*b*) Herpes oticus with facial palsy.

(*c*) Herpes oticus with facial palsy and hypo-acousis.

(*d*) Herpes oticus with facial palsy and Menière's complex.

SUB-GROUPS OF THE SYNDROME

(*e*) Herpes facialis (trigeminal herpes) with facial palsy and auditory symptoms

(*f*) Herpes occipitocollaris (herpes of 2nd, 3rd, and 4th cervical roots), with facial palsy and acoustic symptoms.

(*g*) Herpes zoster of the cephalic extremity (this means herpes facialis and/or herpes occipitocollaris) with auditory nerve complications

He also drew attention to the possibility of multiple involvement of ganglia, both inside and outside the cranium, and in particular to the association of trigeminal, pharyngeal, and vagal zona with geniculate herpes. But the connexion of the chorda tympani or of the petrosal nerve had not at that time been fully appreciated, for no mention was made of them. However, in a later communication (Hunt 1909) he remedied this omission.

> " . . . Supported by these facts," he wrote, " I would regard the sensory system of the facial nerve to be as follows :—to the tympanic cavity and its prolongation into the mastoid and eustachian tube by the petrosal nerves ; a vestigial innervation to the tongue and tonsillar region through the chorda tympani and lingual branches, and a cutaneous innervation in the interior of the auricle by fibres *which pass out with the posterior trunk*, some of which probably reach their destination, the posterior auricular branch of the seventh "

He described the zoster zone of the geniculate ganglion as being represented by a cone-shaped area which occupied the tympanic membrane, the walls of the auditory canal, the external auditory meatus, concha, tragus, antitragus, and antihelix. Shortly afterwards the connexion of the auricular branch of the vagus was recognised and the idea of the posterior auricular branch of the facial nerve supplying cutaneous branches to the ear was dropped

Ramsay Hunt's views were generally accepted and the syndrome remained unaltered for nearly ten years During the interval, however, cases were published in which vesicles were present in areas outside the zone depicted above, although the other features of the condition remained unchanged This led Hunt to revise his views on the anatomical distribution of the seventh nerve, and in a later article on the subject (Hunt 1915) he recapitulated most of his former findings and drew attention to three minor adjustments These modifications referred to the occurrence of vesicles on the back of the ear and very occasionally on the anterior two-thirds of the tongue and the region of the soft palate adjacent to the tonsillar fossa

> " In addition to the typical geniculate eruption in this area (i e the ear), herpetic vesicles were also present in the cleft between the post-mesial surface of the ear and the adjacent mastoid Another point of interest is that in two of the cases (Closier 1911, Palmer 1911) in conjunction with typical herpes in the geniculate area in the ear, there was associated an unilateral eruption of vesicles within the oral cavity, on the palate just in front of the anterior pillar of the fauces, which confirms the existence of a visceral remnant of geniculate innervation within the buccal cavity, indicated in my previous communication "

He then suggested that the postauricular eruption came within the province of the auricular branch of the vagus, and put forward the view that the palatal vesicles were accounted for by the lingual branch of the seventh nerve which innervates the styloglossus and the palatoglossus muscles and afterwards terminates as small filaments to the mucous membrane of the anterior pillar of the fauces and the adjacent tongue There is little doubt that both these views are correct

With reference to the presence of vesicles on the anterior two thirds of the tongue, Hunt mentioned that he had seen one case of this nature, but that there were others on record (Eichhorst 1897, Seigheim 1895, Remak 1885, Bernack 1888) and pointed to the chorda tympani as the obvious explanation, but that is a point which may require modification and certainly will bear further discussion

INVOLVEMENT OF AURICULOTEMPORAL AREA

About the same time, however, attention was drawn to another new feature by the late Dan McKenzie (1915) This writer described a case in which the seventh eighth, ninth, and tenth nerves on one side were involved Apart from a multiple nerve involvement, this case was also remarkable in that the recurrent laryngeal nerve was affected, but the writer added that " . . . the *point of fresh* interest in connexion with the seventh nerve was the appearance in the scalp above the ear of three clusters of *vesicles placed in a* semi circle about two inches above and behind the ear " Another case of temporal vesication in connexion with herpes of the geniculate ganglion has also been published by Guthrie (1920)

The area concerned lies within the province of the auriculotemporal nerve and it would be natural to suppose that the geniculate fibres reached their destination through the communication which exists in the parotid region between the upper division of the facial nerve and the auriculotemporal nerve But this supposition, although feasible, is not completely satisfactory, because the rarity of vesicles in this area would lead one to doubt the presence of geniculate sensory fibres in the communication, which is both large and constant

The anatomists commonly refer to the communication as one which is passing from the auriculotemporal nerve to the facial nerve and we would imagine that the rarity of vesicles in the temporal area would tend to confirm this point It should also be remembered that the facial nerve communicates with the sensory supply of the posterior half of the scalp and the upper part of the neck and yet sporadic vesicles are very seldom seen in these areas

We are not referring to the associated syndrome of herpes occipitocervicalis, which is considered to be a separate item, but in which it is possible that the occipitocervical anastomosis of the seventh nerve may play a part This anastomosis ordinarily exists in a direct fashion between the facial nerve and the great auricular nerve, and less directly between the posterior auricular and the lesser occipital nerves, and in the neck between the cervical branch of the seventh and the anterior cervical nerves

In the three cases of herpes occipitocollaris reviewed by Ramsay Hunt (1910) a facial palsy was present in each, but there were apparently no associated vesicles on the ear, palate, or tongue. If, therefore, the facial palsy in these cases was the outcome of a herpes of the geniculate ganglion, an anomaly was present which might well have depended upon an abnormal disposal of sensory fibres from the seventh nerve, in that they were diverted to the occipitocervical anastomosis from their normal destination In this way the second and third cervical root zones would be amply covered and a satisfactory anatomical explanation afforded for many cases of herpes occipitocollaris

The fourth cervical root zone would not be explained on this basis, although in those cases with a fourth cervical root ganglionitis the multiple involvement of ganglia would be reduced from four to two, but perhaps it is better to say that in these cases the explanation is not entirely satisfactory To return to our original point, however, concerning the appearance of vesicles in the auriculotemporal area, it is possible and not improbable that some of the sensory fibres which pass along the great superficial petrosal nerve to the otic ganglion continue in the communicating branch of the latter to the auriculotemporal nerve (see diagram)

Since then no fresh items have been added to the symptomatology It may be of interest therefore, to record two cases of herpes of the geniculate ganglion in which a vesicular eruption appeared in an area supplied by the great superficial petrosal nerve—namely, in the nose and on the hard and soft palates Hunt (1910), in reviewing those cases with a lingual eruption mentions that there was an eruption on the hard palate in two of them (Seigheim 1895, Eichhorst 1897) but at that time the part played by the great superficial petrosal nerve in the production of a palatal rash had not been recognised and no further attention has since been drawn to this association nor a case of that nature recorded

CASE RECORDS

CASE 1 —A woman aged 52 developed acute pain in the left ear, the cause of which was not apparent on physical examination Two days later a number of vesicles appeared on the external surface of the ear and were confluent by the next day. The whole ear became greatly swollen and by the sixth day had the appearance of a cellulitic infection. There was a large amount of purulent exudate which dried quickly giving the ear a very septic appearance. The external auditory meatus was closed and it was not possible to see the drum. The whole organ was very tender and pain was a prominent feature. On the eighth day a well-developed facial palsy appeared and the patient complained of sore-throat. There was a unilateral vesicular eruption on the hard and soft palates. The vesicles were small and discrete and were surrounded by a ring of hyperæmia. There were seven vesicles on the hard palate and two on the soft palate, which was swollen to about twice its normal size. The whole area was hyperæsthetic. There was a slight serosanguineous discharge from the left nostril and an inspection of the nasal chambers revealed two more vesicles situated anteriorly on the lateral aspect. It was possible that more were present posteriorly. There was also a mild conjunctivitis in the left eye. The tongue appeared normal to inspection but there was a definite blunting of gustatory sensibility as tested with salt and sugar. There was no coincident weakness of the soft palate, which moved well on phonation. The Wassermann reaction was negative. The case proceeded in the usual fashion and the palsy had recovered four months later.

CASE 2.—A man of 48 was knocked down by a motor-car in December, 1930, and sustained a fracture of the base of the skull which caused a discharge of blood and cerebrospinal fluid from the left ear. He was treated in a nursing-home for six weeks and returned to his home for two months, after which he resumed his work in the city He had no complications from the cranial injury and was annoyed at being kept in bed for nearly six weeks following the accident. A year later he appeared to be in good health and was working hard. In February, 1932, just over two years after the accident, he developed pain in the left ear and, thinking that it might be connected with his original injury, he consulted one of us (C. P. G. W.). The external auditory meatus was swollen and painful and the patient was admitted to a nursing-home. The following day some small vesicles became evident on the œdematous floor of the meatus. The vesicles broke down and discharged profusely for a week. About the same time vesicles were noticed on the hard and soft palates, limited to the left side. On examination of the nose three definite vesicles were seen just inside the left nostril Nine days after the first appearance of the pain a definite facial paralysis was discovered The Wassermann reaction was negative The tongue appeared a little swollen, especially on the left side. The patient was kept in bed for a week. The discharge from the ear cleared up and the œdema disappeared so that it was possible to examine the drum, which was very inflamed. The facial paralysis gradually cleared up after three and a half months When seen a year later the patient appeared to be in good health.

GREAT SUPERFICIAL PETROSAL NERVE

The great superficial petrosal nerve, on which the unusual characteristics of the rash depend, deserves more importance than has hitherto been accorded it Originally thought to be motor in character, it is now known to be a mixed nerve containing two systems of fibres—namely, a sensory set originating in the cells of the geniculate ganglion and a parasympathetic set comprising autonomic connector fibres which arise in the facial nucleus and relay in the sphenopalatine ganglion. Both portions of the nerve are distributed ultimately with the branches of the sphenopalatine ganglion, and it may be asked why such a large and constant branch of the geniculate ganglion should so seldom provide a vesicular eruption in a herpes zoster of that ganglion.

As we have mentioned, there appear to be only two other records of a rash on the hard palate; this rarity is curious and difficult to explain It may be due partly to the distribution being concerned with areas which subjectively do not draw attention as do the swollen ear and the palsy and objectively are likely to be overlooked unless the observer makes a point of examining them. Or it is possible that the anatomical disposition of the nerve on or near the periphery of the ganglion may render it less likely to be involved in a disturbance of the ganglion, in which presumably the greatest force of the trouble occurs in the centre Neither explanation is completely satisfying, but the issue is not of great moment. Of more practical importance, however, is the destination and function of two branches (or communications) of the great superficial petrosal nerve which are given off before it finally merges in the vidian nerve These two branches are respectively one to the tympanic plexus and the other to the otic ganglion

For some years it has been known that pain arising in affections of the posterior ethmoidal and sphenoidal air sinuses may be referred to the ear; and it may safely be assumed that this is accomplished through the great superficial petrosal nerve and its communicating branch to the tympanic plexus (see diagram). Indeed, the whole of the sphenopalatine distribution may be referred in this manner, and it therefore follows that pain arising in the soft palate may be referred to the tympanic plexus by this branch as well as by the tympanic branch of the glossopharyngeal nerve—a point not commonly appreciated. With reference to the communicating branch to the otic ganglion, it has already been suggested that this branch may constitute a pathway for those fibres which are responsible for the appearance of vesicles in the auriculotemporal area. A point of further importance is that it may also form a mode of conveyance of taste fibres from the geniculate ganglion to the chorda tympani via the otic ganglion (see diagram).

DISTRIBUTION OF TASTE FIBRES

Ever since the effects of the operation of gasserianectomy were analysed, there has been speculation as to the connexion of the fifth nerve with the gustatory mechanism. Gowers (1902) described the effects of this operation in five cases (four by Horsley, one by Ballance), and stated that in all of them taste was lost over the anterior two-thirds of the tongue and in two over the whole organ He therefore gave it as his decided opinion that the transmission of taste impulses, not only from the chorda territory but also from the glossopharyngeal territory, was via the trigeminal nerve. On the other hand, Cushing (1903), in a larger series of cases, reports that in his experience taste is never completely or permanently lost in the anterior two-thirds of the tongue, although it may be abolished or lessened temporarily

Undoubtedly these latter results completely negative the possibility, of the gustatory pathway passing through the fifth nerve, but Gowers's statement shows equally clearly that this pathway passes in close proximity to the gasserian ganglion Differences in surgical technique would account for the divergence of results if one assumed that the taste fibres travelled underneath the ganglion instead of through it This assumption, however, leads to another, equally patent and important—namely, that the fact that Gowers's cases all showed loss of taste can only reasonably be accounted for on the grounds of a high incidence of taste fibres in the petrosal route It would be straining the law of chance too widely to suppose otherwise

Woollard (1933), in reviewing his experiences on the results of the injection treatment for trigeminal neuralgia, states that he found taste affected in about half the cases after operation on the gasserian ganglion (Carmichael and Woollard 1933) As it is highly improbable that the petrosal nerves would be injured in every case of this nature, it is reasonable to suppose that the approximate incidence of taste fibres present in that route is still higher, so that 50 per cent would be on the conservative side

We are not familiar with the original experiments which resulted in the chorda tympani being identified as the pathway for taste, but, as the results were uniform, it is fairly certain that this experimental section, possibly for the sake of accuracy or simplicity, was carried out close to the lingual nerve If the section of the chorda tympani had been carried out proximal to its junction with the communicating branch from the otic ganglion, the results would certainly have been quite different (see diagram)

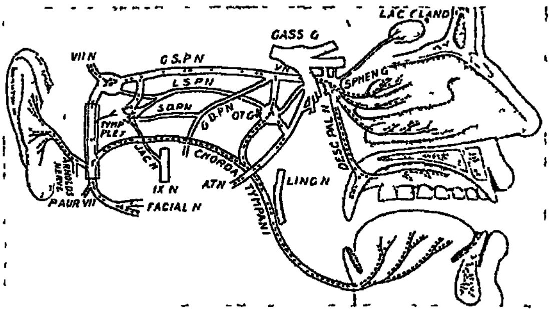

Diagram of the sensory system of the seventh cranial nerve

A T N	Auriculotemporal nerve
DESC. PAL. N	Descending palatine nerves
G D.P N	Great deep petrosal nerve
G.S P N	Great superficial petrosal nerve
GASS G	Gasserian ganglion
JAC N	Jacobsen s nerve
LAC GLAND	Lacrimal gland
LING N	Lingual nerve
L.S.P N	Lesser superficial petrosal nerve
OT G	Otic ganglion
P AUR. VII	Posterior auricular branch of facial nerve
S D.P.N	Small deep petrosal nerve
SPHEN G	Sphenopalatine ganglion
TYMP PLEX	Tympanic plexus
V N	Vidian nerve

Thus it appears that a dual pathway exists for the conduction of taste impulses to the anterior two thirds of the tongue and it is probable that the fibres avail themselves of the two routes at the same time, although they usually preponderate in one or other so that this constitutes the major pathway When section of one route fails to produce any loss of taste, it does not follow that no taste fibres were cut, but merely that they were present in the alternative pathway Conversely, when ageusia is noticed after the section of a nerve, it does not necessarily follow that all taste fibres are absent from the alternate pathway for two reasons In the first place, taste is a sense that requires for its perception both time and cultivation and after section of the major pathway the remaining taste fibres can hardly be expected to take over straight away the transmission of gustatory impulses as skilfully as their predecessors, but, given time and perseverance they will sometimes respond, as some of Cushing's cases show Secondly, taste fibres have a relatively high threshold to stimulation and consequently may fail to respond unless there is adequate representation in number In other words the extent and intensity of gustatory stimulation are reduced to a subliminal level through the meagreness of the receptive mechanism Even normal people with a full complement of taste fibres often find difficulty in appreciating a variety of tastes, hence it is not surprising that when the taste mechanism is reduced suddenly by half or three quarters nothing is tasted at all

Gowers's statement concerning the loss of taste in the posterior third of the tongue may be answered though not explained It is impossible to account morphologically for the presence of glossopharyngeal fibres in the vicinity of the gasserian ganglion with the function that Gowers ascribed to them, and the complete absence of any records of similar ageusia is perhaps the best explanation of the failure of attempts to account for it

Vesicles on the tongue in herpes of the geniculate ganglion are regarded by some authorities as not uncommon In a recent textbook, Brain and Strauss (1934) state that "geniculate zoster is normally associated with typical zoster vesicles in the auricle and less often on the tongue" Hill (1936) wrote that "vesicles are often seen on the anterior two-thirds of the tongue" In Hunt's own cases there were several instances of gustatory disturbance, but only one of lingual vesication, and he had collected four others from the literature, as has already been mentioned We have been able to find one other (McDonald and Taylor 1931) It is doubtful therefore whether vesicles on the tongue are really common—their incidence is probably under 5 per cent —although their appearance there is not so rare as on the palate As Hunt pointed out, their occurrence depends on an abnormal presence of ordinary sensory nerve fibres in the gustatory pathway

SUMMARY

A résumé is given of the Ramsay Hunt syndrome and two cases described in which a vesicular rash was present on the hard and soft palates and in the nose, in addition to the usual auricular eruption and facial palsy

Attention is directed to the wide field which may be the seat of a vesicular eruption which depends upon the frequent association of the seventh nerve sensory fibres with the sensory branches of neighbouring nerves Certain cases of herpes occipitocollaris which are limited to the second and third cervical root zones may depend on the intimate anastomosis which is known to exist between the seventh nerve and the second and third cervical nerves, rather than on a ganglionitis of those roots

The importance of the great superficial petrosal nerve as a sensory vehicle is emphasised In this respect it probably has four distinct properties: (a) By means of its tympanic branch it is responsible for all pain referred to the tympanic plexus from areas situated within the sphenopalatine nerve distribution with the exception of the soft palate, which it serves jointly with the glossopharyngeal nerve (*b*) It may provide, via the otic ganglion, a major pathway for the passage of gustatory fibres to the anterior two-thirds of the tongue, and it is suggested that this route is chosen in at least half the cases Some of the autonomic secretory fibres to the chorda territory may also be conveyed in this manner, relaying in the otic ganglion (*c*) It may be responsible for the passage of sensory fibres to the auriculotemporal area via the otic ganglion and its communicating branch to the auriculotemporal nerve (*d*) Its distribution comprises the whole of the sphenopalatine territory, in which the whole area of the hard palate should be included.

The rarity of vesicles on the anterior two-thirds of the tongue is commented upon

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THE SHIPWAY MACHINE AND CLOSED-CIRCUIT ANÆSTHESIA

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It is not my intention to embark upon a detailed description of the carbon-dioxide absorption technique in general anæsthesia or of the various apparatus designed for its use, but rather to bring to the notice of those interested in closed-circuit methods one particular machine which, in my hands at any rate, has proved during nearly two years' use to be very efficient, extremely practical, and productive of very satisfactory results with various types of general anæsthetics.

At the same time it may be of interest rapidly to review the recent history and development of the carbon-dioxide absorption technique in this country and briefly to outline the rationale and advantages thereof This is necessary for a proper appreciation of the machine under consideration

HISTORY

Hewer used an early form of closed circuit in 1925 when working with ethylene. This was of the single-phase type, the gases passing to and fro between the patient and the re-breathing bag through a single wide-bore tube. The agent for absorbing the CO_2 was interposed and thus was encountered by the gases twice during each cycle of respiration Evans (1932) described an improved circuit in which the gases, by means of non-return valves, circulated continuously through the apparatus and the patient by two tubes, one for inspiration and one for expiration. Thus the difficulty of dead space was overcome Both tubes, however, passed through the absorbing agent, which was thus again encountered twice per respiration

In 1933 Harris gave an account of a greatly improved machine which was the forerunner of the modern biphasic or continuous-circulation types, in which the gases passed through the absorbing agent only once on their way round. Further work on the subject in this country was done by Primrose (1934), Halton (1935), and Harris (1935) In 1935 Sir Francis Shipway designed the machine which is later to be described and he took it to America with him in June of that year. In 1936 interest in carbon-dioxide absorption was further stimulated by Dr. Ralph Waters's visit to this country from America, when he demonstrated his own methods, the outcome of his work on the subject there. Since then several machines have been designed for the method and the necessary parts devised to convert existing types of machine, such as the Boyle and McKesson's A typical example of a machine designed specifically for the carbon-dioxide absorption technique is that of Nosworthy (1935) and Hewer (1937) As in most fields of endeavour, the machine designed primarily for the purpose in view has proved itself to be by far the better instrument.

GENERAL CONSIDERATIONS

The method consists essentially in administering to the patient definitely known and measured quantities of inhalation anæsthetic drugs together with only enough oxygen to meet his metabolic needs The anæsthetic drugs are exhaled unchanged, less the oxygen administered, but with its place taken by the carbon dioxide produced by the body. The latter gas is removed chemically, fresh oxygen in the necessary amounts is added, and the "refreshed" anæsthetic gases are returned to the patient The cycle is repeated indefinitely. By this technique anæsthesia is induced and maintained with the minimal quantity of drugs and with known amounts of them, and the patient re-breathes his own warmed and humid vapours throughout the anæsthesia. The loss of fluid and heat normally taking place in the "continuous-flow" or "intermittent-flow" methods and the waste of anæsthetic drugs are therefore reduced to a minimum, which is limited by the sum of diffusion through the patient's skin and the rubber of the re-breathing bag plus any leaks in the machine and the joint between it and the patient.

In practice the anæsthesia is started as a "continuous-flow" administration and the circuit closed completely after a minute or two (by shutting the expiratory valve) when as much as possible of the inert gases—e g , nitrogen—present in the patient's tissues and in the machine have been expelled by his expirations The state of affairs then is that the patient's tissues are saturated with the maximal concentration of anæsthetic gas compatible with just sufficient oxygen to maintain a healthy colour and function. The supply of gas is shut off at the same time as the circuit is closed and the oxygen regulated according to needs, usually about 200–500 c cm per minute Ether or other volatiles can be added as required either by allowing them to be carried over with the oxygen supply or by allowing the circulating gases to pass through or over the liquid drugs in suitable vaporisers or by drip-feeds placed in series in the circuit Ethylene or cyclopropane may be used instead of nitrous oxide, provided the machine is fitted with the necessary flow-meters designed to measure the flow of these gases In fact, owing to the high cost of cyclopropane the carbon-dioxide absorption technique is the only practical way of using it.

Two main methods of applying these principles may be described the monophasic and the biphasic. In the former the absorbing agent is interposed between the face piece and the re breathing bag (Hewer 1925) of an ordinary gas-oxygen ether machine, and to-and-fro respiration takes place. In the latter, by means of valves, a true circuit is formed, the gases passing continuously round and through the various parts of the system and the patient in one direction only. In the most efficient machines ether is added by means of a vaporiser or a drip feed in the main circuit. The biphasic method, though entailing slightly more cumbersome and complicated apparatus, has definite advantages for it overcomes the problem of "dead space," and the internal resistance set up by the absorbing apparatus is only encountered once per respiration. This is quite enough to absorb the CO_2 efficiently.

The principal agents that have been tried for the purpose of absorbing the carbon dioxide are soda-lime and caustic soda. Although caustic soda is a more efficient absorber and has twice as long a life, the formation of "carbonate mud" which it causes in the machine is a nuisance. Further, the handling of a strong caustic solution in a portable apparatus presents so much difficulty that the method must be regarded as almost impracticable. Thus soda lime in granular form is now chiefly used.

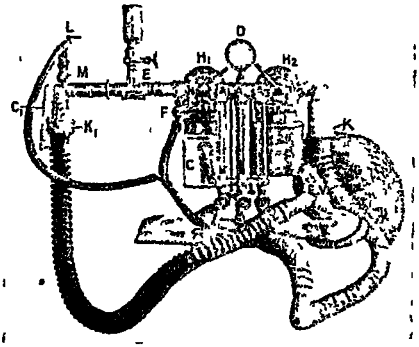
The advantages of closed-circuit technique may be summarised briefly as follows —

(1) Conservation of the patient's body heat and body-fluids in so far as they are exhaled by the respiratory system.
(2) Conservation of muscular energy owing to the quiet respiration which results from the absorption of the CO_2.
(3) The absence of "exhaust gases" permeating the theatre and making life unpleasant for the staff.
(4) Minimisation of the risk of explosion.
(5) Ability to build up high concentrations of anæsthetic substances with small quantities thereof.
(6) Complete control (by cutting the absorber in and out as required) of the CO_2 content of the patient.
(7) Very considerable reduction of post-anæsthetic vomiting.
(8) Administration of minimal amounts of the more toxic agents, such as ether.
(9) Extreme flexibility in all directions.
(10) Extraordinary economy in the use of both gases and volatiles.

THE SHIPWAY MACHINE

The Shipway apparatus is of the biphasic type, uses soda lime as its absorbing agent, and has been built primarily for closed-circuit anæsthesia. It was designed by Sir Francis Shipway and originally constructed for him by A. Charles King Ltd. in 1935. It was used extensively by him in private practice as well as at Guy's Hospital and St Peter's Hospital. It was at the latter hospital that I was first privileged to see it in action.

The machine is intended for use either with nitrous oxide or cyclopropane and to this end is fitted with three dry flow-meters calibrated for these two gases and for oxygen. Any other anæsthetic gas may be equally well used because the machine is so constructed that any of the flow-meters can be changed in a couple of minutes with ease. These flow-meters are grouped centrally on the body of the apparatus (see figure, A_1, A_2, A_3) and controlled by small finger-wheels capable of very fine adjustment. The gases pass from the flow meters to a common passage which enters the main circuit just before it reaches the ether vaporiser (C). The latter is of glass and is of the wick type. The flow of gases through or by-passing it is controlled by a valve formed of a hollow cone revolving in a cone shaped socket (H_1), and operated by a lever. Apertures in the cone and socket are arranged so as to ensure that any desired percentage of the gases may be deflected through the vaporiser. In the machine as it was originally constructed the gases passed direct from there to the delivery end of the apparatus through a special wide-diameter Siebe Gorman non return valve (K_1) and wide-bore rubber hose.



Shipway machine A_1, A_2, A_3, flow meters, B, soda lime canister, C, ether vaporiser, C_1, bubble through bottle for ether, D, manometer, E, drip feed, EV, expiratory valve of Magill type, F, by pass tap for oxygen, G, re breathing bag, H_1, valve controlling supply to ether vaporiser, H_2, valve controlling supply to soda-lime canister, K, K_1, Siebe Gorman valves, L, tap controlling supply of oxygen to bubble through ether bottle, M, stop-cock to cut off whole unit from main circuit

The figure shows the machine as modified by me and in use now, with a drip-feed (E) of Goldman type (Goldman 1937) for vinyl ether interposed in the main circuit between the ether vaporiser and the outlet, and a bubble-through bottle for ether (C_1) coming into the circuit at the outlet end of the machine. The latter works from a supply of oxygen bubbled through it from a by-pass from the main supply and is controlled by a tap (L). The whole unit can be cut off from the main circuit and, if desired, removed in toto by using a stop-cock (M) at its point of entry. The object of this additional ether bottle is to provide a high concentration of ether if it is desired to use the method of pharyngeal insufflation. The re breathing bag and absorber have to be cut out of the circuit at the same time. It was found in practice that the wick vaporiser could not be relied on to produce a sufficiently high concentration for this purpose, though for closed-circuit technique its capabilities are ample and the superior delicacy of control which it provides is much appreciated.

At the delivery end of the apparatus there is an expiratory valve of Magill type (EV), and provision is made for the fitting of a McKesson face piece or endotracheal connexion. Further, the whole machine can be cut off from the patient and the outside air by a special valve incorporated in the body of the expiratory valve and operated by giving the whole valve assembly about a quarter of a turn. The object of this is to enable the constitution of the anæsthetic atmosphere in the machine to be preserved while the latter is temporarily disconnected from the patient for the purpose of intubation or other manipulation. A return length of hose passes the gases back to the soda-lime canister (B) through another Siebe Gorman valve (K). Entry for the gases to the canister is controlled by another cone-and-socket valve (H_2) identical with that operating the ether vaporiser. The canister communicates with the body of the machine close to the flow-meters on the side opposite to the ether vaporiser. The re-breathing bag (G) is attached at right angles to the main circuit just before it enters the soda-lime canister. The circuit is thus completed by the arrival of the gases from the soda-lime canister, minus their carbon-dioxide content, back in the body of the apparatus just above the flow-meters Here they pick up fresh oxygen, and the whole cycle is repeated. A manometer (D) is fitted in the body of the machine above and behind the flow-meters. A rubber tube from the source of supply of oxygen leads direct into the main circuit on the outlet side of the apparatus, by-passing the oxygen flow-meter and the body of the machine and controlled by a tap (F). This allows a full flow and provides for emergency oxygen under pressure.

THE MACHINE IN USE

The machine can be used in many and diverse ways: (1) As a simple continuous-flow apparatus for gas-oxygen-ether, with the soda-lime canister out of circuit and the expiratory valve open; (2) for pharyngeal insufflation after an ordinary induction, with the expiratory valve closed, the re-breathing bag and soda-lime canister out of circuit, and the bubble-through ether-bottle in action; (3) for carbon-dioxide absorption technique.

For this purpose the induction is carried out as a continuous-flow anæsthesia, if nitrous oxide is the gaseous agent to be used. As soon as all the nitrogen possible has been eliminated, the flow of gas is stopped, the expiratory valve closed, and the oxygen regulated as required. Ether is added as may be needed by passing some or all of the gases through the wick vaporiser. This vaporiser is capable of very fine adjustment, and truly minimal quantities of ether can be added. For example, a light but consistent depth of anæsthesia, sufficient for extra-abdominal work, has been maintained for 1¼ hours with as little as 1 oz. of ether.

The soda-lime canister can be cut in and out of the circuit very simply by its valve and complete control of the carbon-dioxide content achieved. Small additions of gas may be needed from time to time to compensate for diffusion through the patient's skin and the rubber of the machine and for loss through any leaks The better the joint between patient and machine the less gas (and ether) will need to be added. Positive pressure is readily produced by adding excess of gas or oxygen and is easily controlled by watching the manometer. This useful adjunct also gives a very good idea of the volume, rhythm, and type of the respiration (and thus of the depth of anæsthesia) by the swing of the needle. Approaching exhaustion of the soda-lime is indicated by a rising pressure and an exaggerated hyperpnœic swinging. Positive pressure does not appear appreciably to affect the depth of nitrous-oxide anæsthesia; but if ether is used considerable increase in depth is rapidly produced by it.

(4) For open or closed-circuit gas-oxygen-vinyl-ether sequence; alternatively vinyl ether may be added to any administration.

(5) For cyclopropane anæsthesia, when induction is initiated with the circuit closed by one of the many minor variations in the induction technique of the gas, or again cyclopropane may be added to a gas-oxygen anæsthetic.

(6) By attaching a nasal inhaler to the delivery end of the apparatus instead of a face-piece or endotracheal connexion, very successful dental anæsthetics may be given, for ample pressure is available, the nitrous oxide flow-meter being calibrated to 20 litres per minute and allowing a flow considerably in excess of this if really needed In this type of work it is very helpful to have the vinyl-ether drip-feed also in action A few cubic centimetres of vinyl ether sometimes makes all the difference to the success of a dental anæsthetic administered to a robust patient, averting an imminent bloodstained battle with a plum-coloured patient and producing in its stead a tranquil performance on a well-oxygenated subject The recovery and after-condition of the patient are not affected in the least by the small amount of vinyl ether needed

It can thus be seen that this machine is wellnigh universal in its application.

ADVANTAGES

In addition to its great adaptability the following advantages are claimed for the modified Shipway machine:—

(1) It is small and compact, measuring (without drip-feed attached) about 12 × 12 × 5 in.

(2) It is easily mounted: *(a)* on its own plinth for use on a table or trolley, by a short vertical rod based on the plinth and passing through a ring and socket attached centrally on the body of the machine (see figure); or *(b)* on the rod of a cylinder stand or anæsthetic trolley in a similar manner.

(3) Being made to a great extent of aluminium alloys it is very light

(4) Its lightness and compactness make it very easily portable

(5) It can be taken completely to pieces easily and quickly and can be cleaned simply and with dispatch—an important point in a closed-circuit apparatus

(6) It is economical, using only 3–4 gallons of nitrous oxide per case and about 1–2 oz. of ether per hour on an average when used for general anæsthesias.

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POSTOPERATIVE THROMBOSIS AND EMBOLISM

REPORT OF A TRIAL OF EPHEDRINE AND ATROPINE AS A PROPHYLACTIC

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Injections of ephedrine and atropine have been recommended by various authors (1938) as a prophylactic against thrombosis and embolism Bankoff (1934), using Ephetonin and atropine, claimed that not one patient treated by this method had developed complications A trial of this remedy was undertaken at University College Hospital by Mr. Gwynne Williams, using ephedrine and atropine injected on the 5th, 7th, and 9th days after operation, as suggested by Bankoff. This report is an analysis of this trial over a period of two years.

SELECTION

The treated series consists only of those patients operated on by Mr Gwynne Williams or admitted under his care for the treatment of injuries. Patients admitted to his beds but operated on by deputies are excluded. Patients not treated by operation—for example, those admitted for investigation or observation—are also excluded. Every case therefore was one of trauma either operative or accidental. As a control series I have taken the cases for the preceding five years selected in the same way.

Cases of thrombosis and embolism are divided into four groups (1) thrombosis only, (2) thrombosis and non fatal pulmonary embolism, (3) non fatal pulmonary embolism without recognised thrombosis, and (4) fatal pulmonary embolism with or without recognised thrombosis. All fatal cases were verified by post mortem examination. The only cases of thrombosis diagnosed were those in which the veins of the lower limbs were affected. No thromboses of the pelvic and hypogastric veins, as described by Ducuing (1929), have been diagnosed.

PROPHYLACTIC TREATMENT

The prophylactic treatment consisted of the hypodermic injection of atropine sulphate gr 1/100 and ephedrine hydrochloride gr ½ on the 5th, 7th, and 9th days after operation. These injections were given to all adults in the treated series but not to children. The youngest age at which thrombosis was observed in this series is 27. Children have been included in the report so that the age distribution of cases in the control and treated series might be compared. The treatment has been in the hands of house surgeons and ward sisters and with changes in these appointments it has occasionally been forgotten. Usually, but not always, the injections were recorded on the temperature chart. In two of the ten cases of thrombosis and embolism there is no record of the injections having been given, and they may have been omitted. In the other eight the injections are recorded. In the group of injuries not treated by open operations the injections do not appear to have been regularly given, but in the treated series there are only 16 cases in this group.

RESULTS

The gross incidence of thrombosis and embolism in the two series is shown in table I. The difference in the percentage incidence is not significant, being less than twice the standard error of the difference. These figures show that the injection of ephedrine and atropine on the 5th, 7th, and 9th days does not prevent postoperative thrombosis and embolism. The extent to which the control and treated series are comparable is shown in tables II, III, IV, and V. In the treated series there is an increase in the proportion of females and of patients over 60. It is to be expected that, other things being equal, these factors would be associated with an increase in thrombosis and embolism. In the "limbs" group in table V the contribution of fractures of the neck of the femur treated by operation calls for special comment. In the control series 5 out of 10 developed thrombosis and embolism, in the treated series only 1 out of 13. It had been realised that this operation had a high incidence of thrombosis and embolism and other steps were taken to prevent these complications, chiefly in the direction of minimising immobilisation. It is doubtful therefore whether any credit is due to ephedrine and atropine for the diminished incidence in this group. If this group is excluded in the calculation of the gross incidence, the treated series shows a higher incidence than does the control. The exclusion of this group, moreover, reduces the difference in age distribution and sex-incidence in the two series, hence the remainders are more strictly comparable. In view of the differences in age distribution and sex incidence of the two series and the doubt about injections in two of the cases in the treated series it is not possible to conclude from these figures that ephedrine and atropine have no influence on thrombosis and embolism,

TABLE I—GROSS INCIDENCE OF THROMBOSIS AND EMBOLISM IN CONTROL AND TREATED SERIES

Series	Cases	Thrombosis and embolism					Total as percentage of series	Difference (per cent)	Standard error of the difference
		Thrombosis only	Thrombosis and embolism	Embolism only	Fatal embolism	Total			
Control	1265	15	6	4	8	33	2·61	—	—
Treated	406	7	—	1	2	10	2·46	0·15	0·080

TABLE II—SEX RATIOS OF WHOLE SERIES AND OF THROMBOSIS AND EMBOLISM

Series	Sex	Cases in series	Cases of thrombosis and embolism
Control	Males	641	16
	Females	624	17
Treated	Males	194	3
	Females	212	7

TABLE III—AGE DISTRIBUTION OF CONTROL AND TREATED SERIES

Age	Controls			Treated		
	Cases		Percentage of series	Cases		Percentage of series
0–4	27	111	8·77	3	27	6·65
5–9	36			10		
10–14	48			14		
15–19	72	303	23·94	16	79	19·46
20–24	121			37		
25–29	110			26		
30–34	85	267	21·11	28	82	20·20
35–39	93			30		
40–44	89			24		
45–49	106	339	26·80	40	108	26·60
50–54	108			34		
55–59	125			34		
60–64	92	211	16·68	35	91	22·41
65–69	77			36		
70–74	42			20		
75–79	17	26	2·05	9	15	3·69
80–84	7			5		
85–89	2			1		
Not recorded	—	8	0·63	—	4	0·99
Total		1265			406	

but there is no evidence from this trial that they have any beneficial effect.

Any scheme of prophylaxis against thrombosis and embolism that is not started until the 5th day after trauma is inadequate In a series of 440 cases of fatal pulmonary embolism following injuries and operations which I have collected, 78 occurred within the first five days after trauma (Pilcher 1937) There can be little doubt that in some the causal thrombosis formed before operation, and it would seem to be a mistake to limit prophylactic measures to the postoperative period

TABLE IV—AGE-DISTRIBUTION OF CASES OF THROMBOSIS AND EMBOLISM

Age	Controls			Treated		
	Cases in series	Thrombosis and embolism		Cases in series	Thrombosis and embolism	
		Non-fatal	Fatal		Non-fatal	Fatal
0–14	111	0	0	27	0	0
15–29	303	1	0	79	0	0
30–44	267	5	1	82	0	0
45–59	339	8	3	108	4	0
60–74	211	10	3	91	3	1
75–89	26	1	1	15	1	1
Not recorded	8	0	0	4	0	0
Total	1265	25	8	406	8	2

TABLE V—INCIDENCE OF THROMBOSIS AND EMBOLISM IN SIX GROUPS OF CASES

Operation group		Cases in group	Group as percentage of series	Non-fatal	Fatal	Total	Total as percentage of group
Abdominal	Controls	453	35·81	16	3	19	4·19
	Treated	161	39·66	5	—	5	3·11
Genito-urinary	Controls	93	7·35	2	1	3	3·23
	Treated	19	4·68	1	—	1	5·26
Trunk	Controls	141	11·15	2	1	3	2·13
	Treated	33	8·13	1	—	1	3·03
Head and neck	Controls	193	15·26	—	—	—	0·00
	Treated	69	17·00	—	1	1	1·45
Limbs	Controls	289	22·85	5	2	7	2·42
	Treated	108	26·60	—	1	1	0·93
Injuries	Controls	96	7·59	—	1	1	1·04
	Treated	16	3·94	1	—	1	6·25

SUMMARY

A series of 406 cases of accidental trauma and operation were treated with hypodermic injections of ephedrine and atropine as a prophylactic against thrombosis and pulmonary embolism, the injections being given on the 5th, 7th, and 9th days after accident or operation. The incidence of thrombosis and embolism was approximately the same as in a control series of 1265 cases

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PNEUMOCOCCAL MENINGITIS TREATED WITH M. & B. 693

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SINCE very few reports of pneumococcal meningitis treated with M & B. 693 have been published, the *following case is recorded in the hope that it will* encourage others to try this drug in the treatment of this as well as the other pyogenic forms of meningitis.

CASE-RECORD

A male, aged 24, felt unwell and had a "cold in the head" on Feb. 21, 1939. He continued at work until the 24th, when he stayed at home He felt better on the following two days, and on the 26th he dined out and later danced. On the 27th he awoke with a headache and did not feel well enough to go to work; he could not eat. In the evening, not feeling so well, he took his temperature and found that it has risen to 103·0° F He collapsed at 7 P.M. and remembers little of what passed during the next twelve hours He was seen by one of us (G. C T.) at 8 P.M. His temperature was 103·0° F. He had vomited and complained of generalised pains and headache. There were no physical signs

On the 28th his temperature was 100·0° F and his pulse-rate 78. He had vomited once but otherwise had had a fair night. He complained of severe headache and was confused in his speech He was removed to a nursing-home where, later, an enema was given with a good result

On March 1 his temperature was 99·8° F and his pulse-rate 70. He was less stuporose but had stiffness of the neck, rigidity of the abdomen, and *a positive* Kernig's sign A diagnosis of meningitis was made.

When he was seen in consultation the same evening his temperature was 102·0° F. and his pulse-rate 92. He was conscious and complained of severe headache (frontal and occipital) and of double vision He could not move his head, trunk, or legs without exciting pain. The head was slightly retracted, there was rigidity of the posterior neck muscles, and Kernig's sign was positive The pupils were slightly dilated and reacted normally. There was almost complete paralysis of the right external rectus muscle. The fundi and remaining cranial nerves were normal, and nothing else abnormal was found on examination of the central nervous system, except *a depression* of the arm reflexes. The skin was moist and showed no eruption There was no cough, and the lungs were clear. There was no discharge from the ears or nose. Meningitis, due to one of the pyogenic organisms, seemed highly probable. M. & B. 693 1 g. was given at 9 P.M., and a further 0·5 g. was ordered for the morning.

At 9.30 A.M. on the 2nd his temperature was 101·0° F. and his pulse-rate 76. He had slept some hours as a result of an injection of heroin gr. $\frac{1}{6}$ No further vomiting had occurred. The signs of meningitis had not altered. Lumbar puncture showed a slightly turbid fluid under moderate pressure containing 2800 polymorphs, 160 lymphocytes, 0·04 per cent. protein, pneumococci on film and culture, and a trace of M. & B. 693. A further 4 g. of the drug was ordered to be given by 10 P.M.

At 9.15 A.M. on the 3rd his temperature was 98·8° F. and his pulse-rate 70 He had slept better and had sweated profusely. His headache was less. He had taken plenty of nourishment on the previous day. Neck rigidity and Kernig's sign were less evident, and he could move his head better The cerebrospinal fluid was clearer and contained 200 polymorphs, 50 lymphocytes, 0 04 per cent protein, no pneumococci on film or culture, and 3 mg of M & B 693 per 100 c cm The patient had had 6 5 g of the drug at this stage A further 4 g was ordered for that day and 5 g for the following one, but instructions were given that he should not be disturbed at night, if he was sleeping

On the 4th his temperature was 99 0° F and his pulse rate 72 Headache was now slight, and a further improvement in his condition was noted

On the 6th his morning temperature had not risen above 99 0° F for the past forty-eight hours, at night there was a rise to 99 2° F The headache had disappeared except for a muzzy feeling, which we attributed to the effects of the drug The paresis of the right external rectus had entirely cleared up, and no signs of meningitis remained except a mild Kernig's sign on the right side His appetite had returned, and for the previous twenty-four hours he had been taking a normal diet The cerebrospinal fluid contained 95 polymorphs, 55 lymphocytes, 0 035 per cent protein and 2 5 mg of M & B 693 per 100 c cm He had now received 19 g of this drug, and the daily dose had now been dropped to 3 5 g

On the 8th his morning temperature was normal, on the two previous evenings it had risen to 99 0° F Sweating was now much less Apart from the muzzy feeling in his head he felt quite well He had now received 25 5 g of M & B 693 in all, and it was decided to stop the drug

On the 10th his temperature had remained normal for the past twenty-four hours The muzzy feeling in the head had disappeared A pustular eruption on the upper chest and back and on the neck had appeared on the previous day The cerebrospinal fluid was now clear and contained 4 polymorphs, 6 lymphocytes, 0 03 per cent protein, and no trace of M & B 693 No abnormal signs were detected on examination of the nervous system

Convalescence has been uneventful

COMMENT

As in many pneumococcal cases, the onset of the meningitis was abrupt Treatment with M & B 693 was begun on the third day At the end of thirty six hours the temperature had fallen to normal in the morning and remained so, apart from a slight evening rise, for the next three days The signs of meningitis rapidly cleared up and finally disappeared on the fifth day of treatment after 10 g of the drug had been given The changes in the cerebrospinal fluid are shown in the accompanying table, which includes the total amount of M & B 693 given before each lumbar puncture The total amount of M & B 693 given was 25 5 g spread over seven days The highest concentration of the drug in the cerebrospinal fluid was 3 mg per 100 c cm

CHANGES IN THE CEREBROSPINAL FLUID IN PNEUMOCOCCAL MENINGITIS TREATED WITH M & B 693

Day of treatment	Total dose of M & B 693	Polymorphs	Lymphocytes	Protein per cent	Pneumococci	M & B 693 per 100 c.cm
1st	1 5 g	2800	160	0·015	Present	Trace
2nd	6 5 g	200	50	0·04	Absent	3 0 mg
6th	19 0 g	95	55	0·035	Absent	2 5 mg
7th	25 5 g			Drug stopped		
9th	—	4	6	0·03	Absent	No trace

We can trace only three published cases in this country of pneumococcal meningitis treated with M & B 693

In Cunningham's (1938) case, that of a woman, aged 47, who developed meningitis secondary to a frontal sinusitis and was in coma when treatment was begun, 11 g of the drug was given in the first twenty-four hours The concentration of the drug in the cerebrospinal fluid reached the high figure of 8 5 mg per 100 c cm The total amount given was 50 g in seven and a half days No toxic symptoms were observed

Reid and Dyke (1938) reported the case of a child, aged 7, to whom 22 5 g of the drug was given during ten days

Robertson's (1938) case was that of a boy, aged 14, who was given the large amount of 27 g in the first seventy-two hours Neither the total dosage nor the subsequent duration of treatment is given but the patient developed hæmaturia, which the author attributed to the toxic effect of the drug

In a series of six cases of meningococcal meningitis treated with M & B 693, Hobson and MacQuaide (1938) used doses varying from 25 g in six days to 90 g in two months the latter dose being in a child aged eight months The daily maximal dose in no case exceeded 6 g These authors suggest that there may be a considerable individual variation in the capacity to absorb the drug, and that possibly this variation is influenced by gastro intestinal factors In their cases the concentration of the drug in the cerebrospinal fluid varied considerably, even though a fairly uniform daily dose of 5–6 g was given in all cases In two cases a concentration of not more than 3 mg per 100 c cm provided an effective bacteriostasis

From the experience gained in our case and from deductions made from the above mentioned reports, we believe that in an adult of average weight and height large doses of the drug are unnecessary, and that further experience may show that the optimal daily dose is 5–6 g for the first forty eight hours, the drug being given four hourly It should not be necessary to give the drug at night if the patient is sleeping This dosage should give a concentration in the cerebrospinal fluid of 3–8 mg per 100 c cm, effective bacteriostasis seems possible with the lower figure Treatment should be continued for three or four days after the temperature drops, the dose being gradually decreased A total amount of 20–30 g should suffice in the average case

Before the introduction of M & B 693 the mortality from pneumococcal meningitis was about 100 per cent The introduction of this drug has entirely altered the outlook in this type of meningitis, just as sulphanilamide has done in meningococcal and streptococcal infections (Banks 1938) Further experience will probably show that, as in meningococcal meningitis, the effect of the drug is greatest during the early stages of the disease, and that failures will be met with when the diagnosis has not been made early enough or the administration of the drug has been delayed In the cases so far treated successfully with this drug the shortest period between the onset of the illness and the first dose of M & B 693 was forty eight hours, and the longest period seventy two hours It is therefore essential that to keep the mortality low, practitioners should recognise the earliest signs of meningitis In a suspected case treatment should not be delayed until the results of the examination of the cerebrospinal fluid are available M & B 693 has been shown to be effective against the meningococcus, streptococcus, and pneumococcus (Whitby 1938) and these are the causal organisms in over 90 per cent of cases of pyogenic meningitis Hobson and MacQuaide (1938) have had good clinical results with M & B 693 in meningococcal meningitis The empirical use of M & B 693 in all forms of acute meningitis is therefore justifiable but a bacteriological examination of the spinal fluid at the earliest opportunity is important for rational treatment and for prognosis.

One of the advantages foreshadowed by chemotherapy of the pyogenic forms of meningitis is the avoidance of daily lumbar puncture and drainage of cerebrospinal fluid (Banks 1938) In the present case it was performed on only four occasions, and no attempt was made to draw off large amounts of fluid It seems desirable to avoid drainage, because the presence of the drug in the fluid enables it to exert a bacteriostatic effect on the organisms in the meninges, choroid plexuses, and cerebrospinal fluid. In children it is possible that repeated lumbar puncture and drainage of cerebrospinal fluid may be factors in promoting adhesions round the lower brainstem and subsequent chronic hydrocephalus Lumbar puncture should therefore be performed only initially to establish the diagnosis and subsequently at intervals of two or three days to ascertain the effect of the drug on the organism and cell count and, when possible, the estimation of the amount of M & B 693 excreted into the cerebrospinal fluid.

We wish to thank Dr. L. E. H. Whitby for kindly performing the pathological investigations and for advice concerning dosage.

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STAPHYLOCOCCAL SEPTICÆMIA TREATED WITH M. & B. 693

REPORT OF A CASE

By Henry J. Wade, M D, B Sc Manc, M.R C P.
CHIEF ASSISTANT TO A MEDICAL UNIT, ROYAL INFIRMARY, MANCHESTER

In view of the lack of positive evidence as to the efficacy of M & B 693 in staphylococcal infections, the following case seems worthy of record

A man of 34, a cotton operative, was admitted to the Manchester Royal Infirmary under Dr. T. H. Oliver on Jan 12, 1939 In November, 1938, he had an attack of pleurisy with cough, from which he made a good recovery In December he developed a boil on his right buttock, which was fomented and incised by his doctor, the wound healing within a week, but he began to complain of weakness and general malaise, loss of appetite and frequent attacks of sweating about this time. These attacks became worse and were accompanied by progressive pallor, insomnia and loss of weight, and he was admitted to the infirmary as an urgent case There was nothing of note in his previous medical history.

On admission he was pale and toxic, with a dry, coated tongue His pulse was 130 and regular, his temperature 102° F, and respiration 21 His urine was acid and contained albumin The abdomen moved well on respiration, and there was some general fullness with generalised voluntary resistance to palpation but no actual tenderness or rigidity. The spleen was enlarged to two finger-breadths below the left costal margin The liver and kidneys were not palpable, and there was no tenderness or resistance in either renal angle. Rectal examination revealed no abnormality. There was a firm, well-healed, recent scar on the right buttock, which was neither tender nor inflamed The heart was not enlarged, and there were no murmurs His blood-pressure was 140/90. Chest movement was equal and good, but there was diminished air-entry at the right base, with generalised medium-pitched rhonchi and râles Examination of the central nervous system was negative

A diagnosis of septicæmia was made, and the following investigations performed. Blood-count: red cells, 4,670,000; Hb., 82 per cent, colour-index, 0 87; white cells, 12,200 (polymorphs 83 5 per cent) Agglutination reactions: no agglutination in dilution of 1 in 20 with *B typhosus* (H and O); *B paratyphosus* A and B (H); *B aertrycke* (O); *Br abortus*, Flexner's bacillus V, W, X, Y and Z; or Sonne's bacillus Fæces culture yielded a growth of the normal fæcal flora. Sputum. cultures yielded a growth of mixed organisms with predominance of *Streptococcus viridans;* no tubercle bacilli seen, sputum was non-purulent in type Urine: centrifuged deposit contained some epithelial cells and pus cells; films showed a few gram-positive cocci, cultures yielded a slight growth of *Staphylococcus albus* (coagulase negative) Blood-culture: growth of *Staph pyogenes* (approximately 20 per c.cm). coagulase positive, occurred after two days' incubation

Progress.—The diagnosis was thus established, and 1 g Uleron (Bayer) t d s was given by mouth on Jan 19 and for four days, without any response The patient's general condition deteriorated, and his temperature rose on one occasion to 104° F. Blood-culture was repeated and returned positive on Jan 22 The albuminuria greatly increased, and owing to his very poor condition a blood-transfusion of 500 c cm was given on Jan. 26 with some slight improvement. Three days afterwards his temperature began to rise again; fever was intermittent, with profuse sweating and a maximum of 104° F (see chart) M & B. 693, 1 g. four times a day, was begun on Jan. 27 His temperature rapidly fell and remained normal for seven days The drug was tolerated very well apart from a little vomiting during the first three days M & B 693 was continued until Feb. 3, during which time repeated blood-culture was negative. His general condition improved considerably but gradually became worse during the seventy-two hours after the drug was stopped, with a rise of temperature to 103° F on Feb. 7. M & B 693 was recommenced on Feb 7, using a dosage of 1 g t d s., and was finally discontinued on Feb. 18 The last blood-culture, taken on Feb. 22, was returned negative after seven days' incubation, and he has made a complete recovery. The last blood-count, done on Feb. 10, showed. red cells, 4,260,000; Hb., 75 per cent, colour-index, 0 87, white cells, 8400 (polymorphs 67 5 per cent lymphocytes 28 5 per cent) He is receiving full doses of ferrous sulphate by mouth to bring the hæmoglobin up to normal The spleen is no longer palpable, and at no time was there evidence of any gross septic focus, such as a perinephric abscess He looks and feels perfectly well.

I am indebted to Dr. Oliver for permission to publish this case, and to Dr R W. Fairbrother and the staff of the clinical laboratory of the Manchester Royal Infirmary for their cooperation.

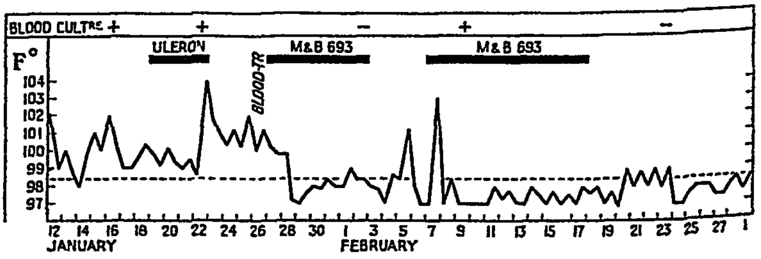


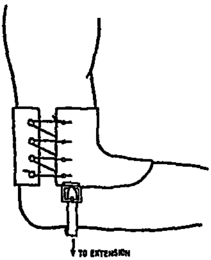
Chart showing fall of temperature during administration of M. & B. 693.

CLINICAL AND LABORATORY NOTES

A SIMPLE METHOD OF APPLYING EXTENSION TO THE ELBOW

By T A Butcher, M D Camb

In cases of fracture of the humerus with injury to the skin of the lower part of the arm and elbow difficulty may be experienced in applying extension because of the impossibility of fixing adhesive strapping to the skin, or the inadvisability of using a transfixing pin or wire when there is local sepsis The following method overcomes this difficulty effectively



The arm is put up in the usual way on a Böhler abduction splint made of metal or plaster of paris An ordinary spat, intended for the foot of the same side as the fracture, is then put on the elbow in exactly the same way as it would be on the ankle (see diagram) If the spat will not quite encircle the limb, as is likely to happen when thick dressings are required, it can be done up effectually by threading a bootlace or string through the button holes and round the buttons Extension is applied to the strap which ordinarily passes under the shoe In some cases this strap may need lengthening When the wound is being dressed extension may be maintained by an assistant holding the forearm

This method may appear rather rough and ready, but I have found it entirely satisfactory in practice

ACUTE TRANS-DIAPHRAGMATIC PROLAPSE OF VISCERA

By J A Maxwell Cameron, M D Man, F R C S E

LATE SENIOR HOUSE SURGEON CUMBERLAND INFIRMARY CARLISLE

The following notes epitomise the clinical features of acute strangulated diaphragmatic hernia

CASE RECORD

A multipara, aged 68, was admitted to the Cumberland Infirmary on Dec 20, 1935 She was a moderately plump woman of fairly good colour and sat up in bed breathing with some distress, with a respiration rate of 30–50, a pulse rate of 120, and a temperature of 99° F

Fifty hours before admission she was straining at stool when suddenly she developed severe cramps about the navel and breathlessness Retching ensued rapidly and had been continuous, the pains radiated up the sternum from the abdomen Attempts at vomiting produced rhythmic pains below the left costal margin Flatus and stools had not been passed and any fluid taken by mouth was returned unchanged within a minute or two Thirst was distressing Pain in the tip of the left shoulder had been present for about twenty four hours There was a short recurrent cough, not troublesome Morphine had been given by the patient's doctor for the past two nights and allowed some respite from distress Ten hours before admission an enema was given but produced no fæcal or gaseous result

Forty-five years previously, at the age of 23, the patient had been crushed by a marble slab, which fell across the upper abdomen Since then she had complained of "windy indigestion" There had been no illnesses and no operations

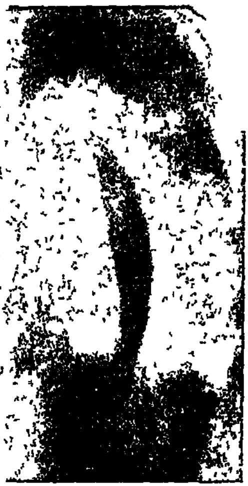
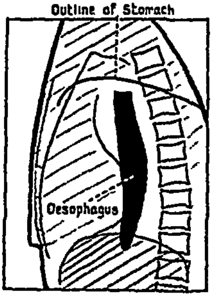


Fig 1—Lateral radiogram of diaphragmatic hernia

Bedside examination indicated that stomach and probably part of the large bowel were inside the left hemithorax Breathing was noticeably rapid but short of actual dyspnœa, which allowed the patient to be fairly pink though it forced her to sit up in bed The clean moist tongue suggested that vomiting had not been copious The apex-beat was displaced medially being seen and felt just below the xiphisternum There was hyper-resonance on percussing the left chest, together with absent vocal resonance and absent breath sounds, these are the signs of pneumothorax Only the pulmonary apices conducted breath sounds the lung bases were level on percussion The abdomen was not distended but was tender above the navel



Key to Fig 1

Radiography —The patient was radiographed after swallowing a few mouthfuls of dilute barium emulsion Figs 1 and 2 illustrate the findings The trachea, mediastinum and heart were displaced to the right by the enormously inflated stomach which occupied the lower three quarters of the left pleural cavity The right dome of the diaphragm moved well on respiration The œsophagus was kinked and partially occluded at its lower end The left costophrenic angle was clear, a large gas bubble below the normal level of the left dome of the diaphragm indicated large bowel, possibly obstructed there

Operation took one hour The œsophagus was washed clear of residual barium; then intratracheal ether was delivered by a positive-pressure apparatus. With the patient in the right lateral position, the eighth rib was subperiosteally resected from angle to costal cartilage; when the pleura was opened a small quantity of clear fluid escaped and the bulging stomach presented The hand could not be introduced into the chest because of the tension, so a small trocar and cannula was inserted into the stomach and its contents evacuated Over a pint of fluid escaped in jets synchronous with the heart-beats. This made it possible to examine the inside of the chest and to palpate a hole in the diaphragm, whose edges were well organised, white, and smooth. The aperture was situated halfway between the mid-axillary and nipple lines, with its outer edge about 1 in. from the chest wall. Since it was not tightly filled with herniating stomach, three fingers could be passed down into the abdomen. Besides the stomach a large loop of collapsed transverse colon and some omentum could be seen above the diaphragm.

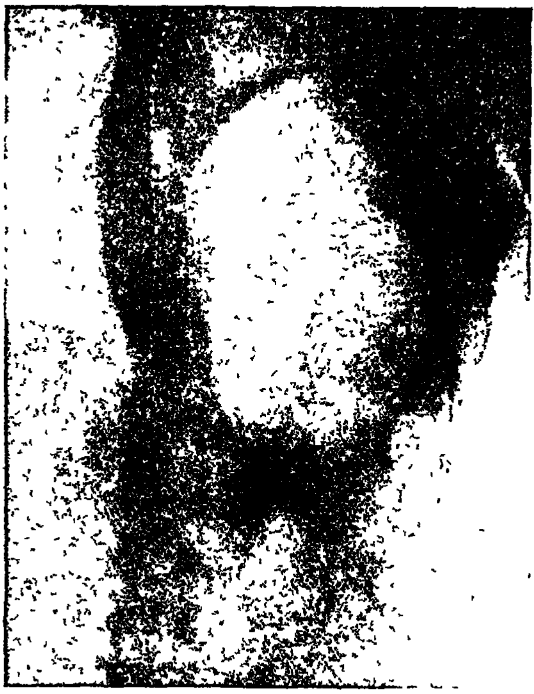
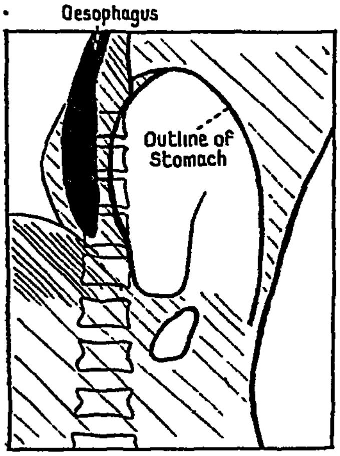


FIG. 2—*Anteroposterior radiogram of diaphragmatic hernia.*



Key to Fig. 2

On replacing the contents in the abdomen, two omental adhesions presented, one to the edge of the diaphragmatic hole and one, a thin slip of fatty omentum, to the pericardial aspect of the pleura. They were both well organised and bled from both ends when torn across.

The gap in the diaphragm was closed without tension with two rows of catgut sutures. The chest wall was closed in layers after an unsuccessful attempt to expand the lung.

The patient withstood operation well and was more comfortable next day, and there was no vomiting Her improvement, however, did not continue; she became worse on the second and died on the third day after operation

Post-mortem examination showed that the left lung had re-expanded and filled up three-quarters of the left chest. There was no pleurisy. The hole in the diaphragm was closed, and adhesions had begun to form No peritonitis was evident. The pancreas showed acute hæmorrhagic necrosis. There was no evidence of calculi in the biliary tract. The cause of the pancreatitis must have been the trauma of the operation.

The history of the old injury cannot be neglected; despite the long latent period it was undoubtedly the predisposing factor. The omental adhesions bear witness to the temporary patching of a tear in the diaphragm However, a sudden rise in intra-abdominal pressure forty-five years later produced a diaphragmatic hernia.

SUMMARY

(1) A case is described in which the left dome of the diaphragm was ruptured and then repaired spontaneously. (2) After a latent period of forty-five years the old wound gave way, producing an acute diaphragmatic hernia (3) Death from acute hæmorrhagic pancreatitis took place on the third day after operation.

I am indebted to Mr. A. J. Caird for permission and guidance in preparing this report; to Dr. J. S. Faulds for the post-mortem report; and to Dr. R. Connell for the radiographic findings.

THE LANCET 100 YEARS AGO

March 30, 1839, *p.* 50

From a leading article.

Speculative researches, and isolated facts are prosecuted most successfully by individuals The discoverer sees a truth that others cannot see, and as it is impossible for a Government to decide whether the imagined new principle is a vague, baseless vision, before it is brought within the range of demonstration, no good ever results from the bestowal of public money on projectors, inventors, or presumed discoverers. When successful they should be rewarded, but no government has a right to grant them public money, either to undertake, carry out, or complete inventions, as 99 in 100 new projects prove to be moonshine, and the real discoverer is too confident, too ardent, *and too much enamoured of Truth, not to follow* her, in the midst of difficulties and obstacles, to the end of the world. NEWTON would never have applied to the minister for a sum of money to enable him to demonstrate the universality of the law of gravitation, and if he had applied, probably he would not have been successful, because the minister might have doubted of the existence of the law of gravitation, or of its importance, or of NEWTON's powers of realising the ideas with which he was impressed, which may not have been remarkably intelligible in their crude state to the mind of a Prime Minister.

There are, however, several departments of inquiry, of decided and acknowledged utility, which private individuals have it rarely in their power to pursue. This is the case in natural history, where specimens have to be collected at great expense, in different parts of the globe. ARISTOTLE would not have succeeded so admirably *in his* zoology, if he had not received assistance from ALEXANDER. . . . Statistics, again, can only be cultivated to a limited extent by individuals; a fortune would scarcely enable a statist to obtain a census of the population, nor would the country submit to the experiment, or consent to make the returns, although all are equally interested in knowing whether the resources and population are decaying or increasing

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTION OF EPIDEMIOLOGY

AT a meeting of this section held on March 24 the chair was taken by Dr J D ROLLESTON, vice president, and Dr E R CULLINAN read a paper on the

Epidemiology of Jaundice

The two forms of infective jaundice seen in this country, he said, were Weil's disease and common infective jaundice The former had been defined by Weil in 1886 and was still relatively uncommon Less than 200 cases had been reported in Great Britain Human cases could almost always be traced to rats and the organism entered through cuts and sodden skin, and perhaps conjunctivæ and the upper respiratory tract Early diagnosis was essential as the antiserum was most valuable in the first stage There were mild infections without jaundice, with fever and malaise, and the condition should be suspected if the occupation brought the patient into contact with rats

Common infective, or catarrhal, jaundice was widespread, apparently sporadic cases were seen Its cause was unknown In the last twelve years there had been 1707 reported outbreaks, widely scattered over the country The disease was not confined to rural areas, but was more easily seen and traced in villages Infectivity was low and incubation long Children of 6–10 years were peculiarly susceptible About one fifth of the cases in most epidemics were in adults, but they seemed to have more immunity than children though their symptoms were more severe If there was any doubt, Weil's disease should be excluded There was often a prodromal period of lassitude and malaise and a sharp febrile onset—usually described as "a chill"—without rigor Early headache, loss of appetite, abdominal pain and nausea were common, and vomiting often severe and intractable Jaundice appeared in anything up to twelve days after the onset, first in the conjunctivæ and then in the face and neck Its appearance usually heralded the beginning of convalescence In severe cases it might last three weeks or longer In adults the liver might be three finger breadths below the costal margin The gall bladder had been said to be palpable in some cases The urine might be dark with bile pigments one or two days before the onset of jaundice If 0 1 mg of histamine was injected and a piece of glass pressed firmly over the resulting weal, one van den Bergh unit (or more) of bilirubin in the blood would be revealed by a yellow colour in the centre of the weal The eye could not detect less than four units There might be acetonuria and urticaria There was relative or absolute increase in lymphocytes or monocytes, or both, but no leucocytosis The stools were usually clay coloured at some time, but often contained bile during the period of jaundice Sore throat was rare and incidental Convalescence lasted from one to three weeks The disease was usually mild especially among children Occasionally it recurred Complications were very rare parotitis and oöphoritis had been recorded

The disease spread from person to person, and not by water, milk, or food The family and dormitory spread suggested droplet infection The infectivity was only high when contact was close The period of incubation was difficult to assess, but approximated to 21–35 days Some believed there were two forms of the disease, with different incubation periods People were infectious before they were jaundiced but the period of infectiousness was short Children could go to school after two weeks and adults might be admitted to general wards when jaundice had appeared Atypical missed cases, carrier spread, and low infectivity accounted for apparent sporadic and endemic cases The pathological process was probably necrosis of liver cells, but fatal cases were very rare Some maintained that two different clinical pictures were often seen in epidemics a primary hepatic necrosis type and an obstruction type There did not seem enough evidence to justify this subdivision Epidemic jaundice in Sweden seemed to have taken the form of acute necrosis of the liver Subacute necrosis unassociated with any drug or toxin was by no means unknown in this country The bile epithelium was seldom destroyed and there was no evidence of obstruction or inflammation of the bile ducts The similarity between these cases and common infective jaundice suggested a common cause Jaundice cases observed in a diabetic clinic resembled common infective jaundice, except that the jaundice persisted for 31–90 days Syphilis and arsenical preparations rendered the liver more susceptible to damage Many of the cases in syphilitics occurred in epidemics irrespective of the dose and method of administering the drug Common infective jaundice had also followed the injection of normal human serum, possibly a hepatotoxic agent was introduced and predisposed to, but did not cause, a subsequent attack of the disease

The CHAIRMAN said he was particularly interested in the spirochætal jaundice found increasingly in sewer workers, fish curers, and miners, which might assume many different forms Holland had suffered much from the disease, infection having taken place in swimming baths The question arose whether active prophylaxis should not be instituted on a large scale Fatal jaundice following injection of convalescent serum had caused public health authorities much anxiety

Dr J L NEWMAN spoke of the recent West Sussex epidemic which had spread widely in quite unconnected places since an endemic focus had been discovered in Arundel in July, 1937 Some 300 cases had been traced There had been peaks in November and January One epidemic had been confined to a row of council houses a little way outside a village, another had been almost confined to school children The school spread had been over stressed Thirty nine schools had been involved in Sussex and twenty of them had had 3 cases or less In only four had there been more than 20 cases The child population was more susceptible than the adult population Often direct contact had not been established The clinical features had varied enormously In three schools absences for bilious attacks had been abnormally frequent before the epidemic of jaundice

Major H C BROWN reported absolute failure to find any leptospiral infection in the Northamptonshire and Oxford outbreaks. In the former, conjunctivitis had been extremely common He had never felt satisfied with the subdivision into two types The jaundice following use of measles serum showed none of the pathological features of Weil's disease in the case he had examined, moreover, this child had shown 60 per cent of mononuclears Villages in Northampton infected one year seemed to escape in the following year Florid cases showed all the symptoms of Weil's disease and were clinically indistinguishable, except by the intense muscular pain of Weil's disease.

Dr. J. ALISON GLOVER described three school epidemics The first one had shown a mass outbreak which could only be due to droplet infection The explosive picture presented was that of a short incubation period There was also a type of long-period infective jaundice. The chart of the Post Office outbreak looked like a low-grade droplet infection with quite a short incubation period Tonsillitis or sore-throat occurred in nearly all cases in some epidemics and were almost completely absent in others. Jaundice was a complication of scarlet fever; in four cases in one epidemic the hands had peeled One American outbreak had been associated with salmonella gastro-enteritis and seemed to have been due to water. In one case there had been a serious intestinal hæmorrhage

Dr. J M. ALSTON, speaking of prophylaxis of Weil's disease, said that inoculation did not seem very successful There were severe reactions, and it did not seem to produce many antibodies. The incidence of Weil's disease in London sewer-workers was 1 per cent. per annum; so it did not seem worth inoculating them. The fish-curing type could probably be prevented by keeping the houses cleaner and so free from rats.

Dr. W. N. PICKLES expressed his complete accord with Dr. Cullinan. Cases of hepatic necrosis appeared in mild epidemics and seemed to have a common ætiology and incubation period Close contact—e g, sharing a bed—seemed to be necessary in the majority of cases. He asked if permanent damage were done to the liver.

Dr. G. M FINDLAY thought the infective agent was a virus At one time, working on yellow fever, 95 cases of jaundice had been traced in 3100 persons inoculated by tissue-culture methods The hepatitis had been completely cut out by changing the strain of yellow-fever virus, although another 3000 persons had been inoculated The infective agent had shown all the characteristics of a filtrable virus When a virus was inoculated by an unusual route, the incubation period was often prolonged Jaundice after measles inoculation was very like that after yellow-fever inoculation and the disease could be passed on to non-inoculated children. No laboratory animal had hitherto been found susceptible, but there was now a hope that rhesus monkeys would take it, by inoculation directly into the stomach.

Dr. J W HEALY spoke of epidemic jaundice among L C C. school-children. From November, 1937, to February, 1939, 193 cases had been notified but some of the data were secondhand and retrospective Many mild cases must have been missed. The most obvious grouping was by schools, the largest group being 24 cases in a Millwall school The commonest early symptoms had been drowsiness, headache, and vomiting In 90 per cent of cases jaundice appeared between one and eight days after the onset of symptoms. The period of absence from school varied from one week to three months

Dr CULLINAN, in reply, said he had been unable to obtain any striking reports of recurrences, but the second attack seemed to be worse than the first On the whole, very few cases of tonsillitis had been described He very much doubted whether in the ordinary case any permanent damage was done to the liver, but if subacute necrosis were a related condition, and if it recurred, the liver might get damaged.

SECTION OF DISEASE IN CHILDREN

AT a meeting of this section held on March 24, with Dr. E. A COCKAYNE, the president, in the chair, Prof. ROBERT DEBRÉ of Paris gave an address on

Familial Hepatitis and Chronic Jaundice

Prof Debré said that the customary search for inflammations and intoxications, such as syphilis, tuberculosis, or alcohol, could not account for cases in the first month of life, and when successive members of a family were attacked, the suggestion arose of a hereditary origin. He described a family of six children, of whom three had died of hepatic cirrhosis, a fourth though affected still surviving The first and the fifth child were normal. The second, a boy, died at 8 months of cirrhosis The third, a girl, was first seen at the age of 4 when she had hard enlargement of liver and spleen, clubbed fingers, slight deafness, and chronic jaundice with bile retention. When she was 9 her growth was so retarded that she looked only 6 At this time she had hæmorrhage from the gums and died of pneumonia The fourth child, a girl, when first seen aged 1 year, had been jaundiced for two weeks at 2 months, and from the age of 6 months passed pale stools and dark urine The liver was hard and smooth and extended to the iliac spine She died of hæmorrhage at 10 The sixth, a boy, had spontaneous epistaxis, dark urine and pruritus when he was 3, and since then a large liver and spleen Jaundice persisted in varying intensity for 5 years There was no ascites. These were undoubted cases of biliary cirrhosis of familial type. Some thirty families were on record, many in the French, most in the British literature. In more than half there were 2 cases in a family, in some 3 or 4. In one family 2 mongols were affected In three families 2 generations were involved In each case in a family the history of onset of symptoms was strikingly similar. The disease was rare in France and Germany, less so in Britain and the United States, known in Spain and Italy, and commonest in India and Mexico. Cases could be grouped into three divisions: (1) those of the type of Laennec's cirrhosis, with a large abdomen, large liver, and evidence of portal obstruction; (2) those with large liver and spleen, and hæmorrhage, but without ascites or icterus, reminiscent of Banti's disease; (3) the commonest type, those with biliary cirrhosis. pronounced jaundice, increased bile pigments and salts in blood and urine, colourless stools as a rule, large, firm and smooth liver and spleen, and at a late stage ascites and hæmorrhage Retardation of growth in weight and height were constant, and sexual development delayed, while mental progress was slow The course of the disease could be slow or rapid, the onset early in life or late It was possible that some cases of hepatic cirrhosis in adults were of hereditary origin Pathological studies, which were rare, showed that the normal structure of the liver was completely destroyed, the lobules being separated by masses of fibrous tissue, the bile-ducts remaining normal; the staining power of the nuclei of the hepatic cells was lost. Certain other liver diseases had to be differentiated from this condition. The dyslipoidic conditions of Niemann-Pick, Gaucher, and Tay-Sachs had their own special features In Gaucher's disease the spleen was relatively more enlarged than the liver, hæmorrhages were common, there were bone and lymph-node changes, and the colour was due to pigmentation of the type of hæmochromatosis. In familial hæmolytic jaundice the clinical course and the large spleen with relatively small liver made distinction easy Another familial group with large abdomen, large liver, and dwarfism, but without splenomegaly, ascites, icterus or hæmorrhage was that described by von Gierke Here glycogen and lipoid metabolism was markedly disturbed, the disease belonged to the polycoric cirrhoses, a term coined by Prof Debré to describe pathological accumulation of substances in the liver Hepatic cirrhosis with bone and corneal changes had been reported One curious type, subacute hepatic necrosis, was said to follow epidemic catarrhal jaundice, a possibility Prof Debré was reluctant to accept

Other hereditary and familial diseases were associated with hepatic cirrhosis Congenital deformity of the extrahepatic biliary system was found in some cases of neonatal obstructive cirrhosis Vitamin-lack, excessive carbohydrate or spices, congenital syphilis, and some congenital factor had been invoked to explain the cases of familial hepatic cirrhosis in Indians and Mexicans In the hepatolenticular degeneration of Wilson, liver, brain and cornea were involved Osler and others had suggested that this degeneration might well be closely associated with familial hepatitis One form of Laennec's cirrhosis was associated with telangiectasis and hæmangiomatosis In conclusion Prof Debré noted analogies between familial hepatitis and renal dwarfism, where a progressive fibrosis was found, sometimes with abnormalities of the excretory channels Was it not possible that in all these cases a defect of the trophic centres produced a progressive fibrosis leading inevitably to death? The cause would be in the genes, and the study of these conditions should be enlarged to include close attention to their genetic aspects

The PRESIDENT suggested that the disease was inherited as a recessive, in the same way as Wilson's disease If this were so, consanguinity of parents should be demonstrable —Dr F PARKES WEBER mentioned his personal debt to France for help in understanding his own cases —Dr B SCHLESINGER asked for an explanation of the dwarfism and the clubbing —Dr J LEVY reported positive formol gel tests with serum from cirrhosis cases —Dr W W PAYNE had the same experience, but the test was not so strongly positive as in kala azar —Dr R C JEWESBURY expressed interest in the fact that two mongols had been affected

MEDICAL SOCIETY OF LONDON

AT a meeting of this society on March 27 the chair was taken by Dr C E LAKIN, the president, and a discussion on the

Ocular Manifestations of General Disease

was opened by Prof EDWIN BRAMWELL Speaking particularly of the significance of certain derangements of the ocular musculature he said that the eye was the paramount organ of silent expression, and the motor phenomena which constituted expression could give important information about the state of health and mind the temperament, and the attitude towards the self and the environment Sleeping with the eyes half open in a seriously ill patient had grave significance Tremor or flicker of the eyelids indicated an anxious temperament or temporary anxiety Flicker, which was pronounced in traumatic neurasthenia," could not be effectively simulated It might be accompanied by other signs of emotional disturbance and might be similarly produced It did not occur in exophthalmic or toxic goitre Excessive blinking might be due to emotional causes Diminution in the rate of blinking was a striking feature of some cases of parkinsonism and might be a valuable sign in the early stages It was also frequent in exophthalmic goitre, even in the absence of exophthalmos A tic was often the sequel of blepharospasm It might develop from a mannerism, but was essentially a manifestation of something defective in the mentality—irresolution or want of perseverance Temporary blurring of vision, apparently due to a paresis of accommodation, was fairly common in acute lethargic or epidemic encephalitis Transient diplopia was more often due to an encephalitis than to any other cause, but defective convergence was perhaps the most frequent ocular manifestation Loss of upward movement of the eyes was not uncommon, but when it was the only sign the diagnosis lay between encephalitis and a midbrain tumour Oscillation of the eyeballs when the eyes came to rest after lateral deviation was sometimes observed in chronic encephalitis and in tuberculous meningitis Oculogyral crises were pathognomonic of chronic encephalitis, the movements resembled those of tic, especially in being exaggerated by emotion

Syphilis was an especially frequent cause of peripheral ocular palsy, but its incidence in this connexion had been exaggerated Localised extrinsic pressure, in association perhaps with some general factor, was the determining cause in the great majority of unilateral cerebral or spinal nerve palsies Predisposition to pressure depending on particular anatomical relationships chiefly explained the frequency of some peripheral nerve palsies and the rarity of others An isolated third nerve paralysis was due in probably the great majority of cases to the leakage of an aneurysm at about the point where the carotid artery joined the circle of Willis A leaking aneurysm at this site caused a characteristic syndrome sudden severe headache localised to the back of the orbit or the corresponding side of the forehead in a previously healthy person, vomiting, vertigo, and sometimes drowsiness, rigidity of the neck and perhaps Kernig's sign the presence of blood in the cerebrospinal fluid, and a third nerve paralysis or paresis The diagnosis might be confirmed by arterial radiography Ocular palsies were common in myasthenia gravis and were characterised by variability in their distribution and degree and the ease with which the muscles became exhausted

The Argyll Robertson pupil had been associated by its discoverer with myosis, but only because the four patients in whom he first observed it had all been referred to him as sufferers from myosis Tonic pupil differed from Argyll Robertson pupil in being found especially in young people and in females It was often unilateral and usually dilated It was immobile to light and contracted on accommodation and convergence very slowly and often extremely, the subsequent dilatation being correspondingly sluggish It was not a manifestation of syphilis Some or all of the reflexes might be lost and tabes might be erroneously diagnosed It was a benign disorder for it was not disabling and had no other symptoms Miner's nystagmus was not a physical disease nor disabling in itself, but was a sign of anxiety neurosis due to the danger of mining Much unnecessary disability and expenditure of compensation was due to the failure to recognise this simple fact

Mr R FOSTER MOORE said that for detecting proptosis he relied on direct observation standing behind the patient and tilting his head back until the eyeballs were visible under the brows He could easily and accurately detect which eye was the more prominent Undue prominence or recession might be simulated by retraction of an upper lid or by the sinking of the normal eye into the head, leaving the affected eye apparently normal The exact negative of the condition was seen in sympathetic paralysis, in which the lid was dropped and the patient complained that the eye was sinking into the head or that the normal eye was getting large There was no sinking-in of the eye in enophthalmos, but the appearance was produced by the dropping of the upper lid. The proptosis of Graves's disease was not due to stimulation of sympathetic nerves but consisted in the spontaneous development of retraction of an upper lid Such retraction was never caused by anything else except injury. It might allow the eye to be injured through undue exposure to trauma or infection The exophthalmos never entirely disappeared after cure He believed the cause to be an increase of orbital fat, combined with œdema of the tissues The proptosis did not develop suddenly but might be noticed suddenly. He had relieved the condition by incising the conjunctiva and removing portions of the fat, suturing the lids until healing was complete

The presence of even one small hæmorrhage in the retina was evidence of disease Hæmorrhages differed largely according to the disease which caused them They produced few and slight subjective symptoms unless they involved the macula. They might, however, be associated with other changes, such as renal retinitis, which caused serious impairment of vision The affected area of the retina did not change colour like a healing bruise of the skin, but faded away without trace. Even a large hæmorrhage which persisted for many months was not associated with pigmentary change. The immediate cause of the extravasation might be purely physical—e.g , the pressure undergone by an infant at birth, and that of papillœdema or central vein thrombosis. The fundus of a dying patient showed whiteness of the disc, great reduction in the size of the arteries, breaking-up of the blood column in the veins into small blocks which swung to and fro, and cessation of movement. About ten minutes after death the cornea became opaque Hæmorrhage might also be due to changes in the blood or the endothelium. Probably no patient died of leukæmia or pernicious anæmia without retinal hæmorrhage.

The pressure in the retinal vessels in arteriosclerosis might be lower than normal, even though the systolic pressure was high ; the hæmorrhages were therefore perhaps due to a fault in the endothelium The distinctive flame-shaped hæmorrhage was due to blood escaping into the nerve-fibre layer and showing up its striated texture In diabetes the hæmorrhages took place in the deeper layers and showed up their retiform structure. Diamond-shaped hæmorrhages with pale centres strongly suggested a blood disease They looked like an endothelial cell with its nucleus. They might represent an escape first of all of blood elements and later, when the leak between the endothelial cells closed, of plasma and platelets only, until the hole was stopped. The condition of the retinal vessels in vascular disease was a clear and accessible indication of the condition of cerebral vessels of the same size. The most conspicuous evidence was to be found where the arteries crossed over the veins : they would turn and run beside the vein for a short distance on each side This was the surest sign of arteriosclerosis The calibre of the artery might be reduced at various points This reduction was often accompanied by subjective visual symptoms clearly referable to the precarious supply of blood The arteries also took on a " copper-wire " appearance, but this was only an exaggeration of the normal brightly polished appearance. Hæmorrhages were mostly of the flame type and showed an advanced stage of the disease.

Dr. ANTHONY FEILING, dealing with the optic nerve, said that the term papillœdema should be reserved for cases showing œdema of the optic discs or papillæ without signs of generalised change in the retina Swelling of the disc might be found in cases of true inflammation of the optic nerve. When it affected the intra-ocular portion it was termed papillitis, when the retro-ocular part, retrobulbar neuritis. These cases, however, formed a very small proportion of the cases of true papillœdema, which was principally found in states of increased intracranial tension. It was generally believed that increase of pressure of the cerebrospinal fluid in the cerebral subarachnoid space led to obstruction in the venous and probably also the lymphatic drainage of the optic nerve The causes were intracranial tumours, cerebral abscess, encephalitis and meningitis, hydrocephalus, syphilis, cerebral sinus thrombosis, subarachnoid hæmorrhage, and hyperpiesia. Intracranial tumours were the most important single cause of papillœdema. Subtentorial tumours, particularly tumours of the cerebellum, tended to produce an early and severe papillœdema, as did tumours which blocked the sylvian aqueduct or the fourth ventricle. Papillœdema often appeared late in the growth of a tumour of the acoustic nerve It tended to be well marked in tumours of the temporosphenoidal lobe and in most tumours of the frontal and parieto-occipital lobes. It appeared late in tumours affecting the vertex or the centrum ovale. In tumours of the pons it was often entirely absent. The larger the tumour the greater the probability of a papillœdema, and the rate of its development depended on the rate of growth of the tumour.

Papillœdema was, on the other hand, not rarely the presenting symptom in cases of cerebral tumour, which was usually subtentorial or at least in a silent region of the hemisphere, such as the frontal or temporosphenoidal lobe, especially on the right side, or within the ventricle. Unless the difference between the œdema of the two sides was very noticeable and measurable in diopters, its localising value was doubtful. Ample vision might be retained, but sooner or later secondary atrophy of the nerve-fibres would take place The earliest change might be a simple enlargement of the blind spot, followed by a concentric contraction of the visual fields Once loss of vision began it was apt to increase rapidly and lead to permanent blindness, even after the tumour had been removed Some authorities said that unilateral papillœdema was more likely to be found in association with abscess than with tumour Papillœdema was exceedingly rare in the non-suppurative forms of encephalitis and was much less common than might be supposed in meningitis When meningococcal meningitis had produced a severe internal hydrocephalus, optic atrophy was commoner than papillœdema Internal hydrocephalus might, however, produce papillœdema at a rate corresponding to its development. An acute form was now recognised under the designation of toxic or otitic hydrocephalus, formerly known as serous meningitis In many cases in which the picture was simply one of intracranial hydrocephalus there might be some form of intraventricular tumour ; ventriculography here had great diagnostic value

In hyperpiesia papillœdema was rarely unaccompanied by other changes in the retina, but it sometimes appeared in that condition which was now generally termed hypertensive encephalopathy and arose in the malignant form of hypertension Temporary papillœdema might occur in certain forms of renal disease or prerenal toxæmia, such as the toxæmic kidney of pregnancy, or in lead poisoning In neuromyelitis optica a true papillœdema of low degree might be associated with gross loss of vision, though in this condition a retrobulbar neuritis without swelling of the discs was commoner Dr Feiling dealt also with optic atrophy

Mr WILLIAM IBBOTSON asked the cause of a papillœdema persisting after successful removal of an extradural abscess in a boy aged 12, and of paralysis of the external rectus of the same side as a mastoid drainage, lasting for six months and completely clearing up

The PRESIDENT asked why so many patients came to the general physician saying that the ophthalmologist had assured them that they had nothing wrong with their eyes but that their sight would improve with their general health He wondered what the specialist really meant by that statement

Mr F A WILLIAMSON-NOBLE said that the signs of retinal arteriosclerosis were sometimes very difficult to discover with the ophthalmoscope Irregularity of the calibre of the arteries was very difficult to see In preparing drawings of retinal appearances every ophthalmologist seemed to put into every case the signs which particularly appealed to him Papillœdema was sometimes superimposed upon an optic atrophy, possibly through blocking of the narrow chink in the subdural space leading through the optic foramen, in such a way that the increased pressure could not be transmitted down the channel through which the nerve ran

Dr G E S WARD spoke of an elderly gentleman who had enjoyed excellent general health in spite of a continuing systolic pressure of 240 and occasional strokes A retinal hæmorrhage had deprived him of most of the vision of his one sound eye, but it had been restored by a stroke

REVIEWS AND NOTICES OF BOOKS

Medical Organisation and Surgical Practice in Air Raids

By PHILIP H MITCHINER, C.B E, T D, M D, M S, F R C S, K H S, surgeon and lecturer in surgery at St Thomas s Hospital, London, Colonel, T.A, D D M S, 1st Anti-Aircraft Corps, and E M COWELL, D S O T D, M D, F R C S, surgeon to the Croydon General Hospital, Colonel, T A, A.D M S, 44th H C Division T A London J and A Churchill 1939 Pp 247 10s 6d

THIS book deals with (1) the medical organisation of air raid casualties, and (2) their treatment by surgeons, nurses and first aiders On the second of these subjects the authors' wide experience of military surgery entitles them to speak with particular authority Especially valuable are their descriptions of conditions met with in Spain and the procedures adopted there, it would have been interesting, however, to have figures in support of their contention that the "plaster method" of treating wounds results in an increased death rate from tetanus and gas gangrene They rightly condemn the Japanese practice of withholding morphia from casualties, but do not say whether they favour administration of this drug by first aid workers, as is now permitted to some extent in the Royal Air Force

In the section on organisation the scheme set out differs in some ways from that described in the official publications Thus Mitchiner and Cowell describe a unit which they call a dressing station, and to which they say all casualties should be brought They say that this unit is the equivalent of the official first aid post, and they recommend schools as suitable buildings for the purpose It should, however, be pointed out that the Ministry has given instructions that serious casualties should be taken direct to casualty receiving hospitals and not to first aid posts and that it is now the official policy to place first aid posts in or near the casualty hospitals The authors also recommend that casualties should not, save in exceptional circumstances, be detained in the danger area, but should immediately be evacuated to casualty-clearing hospitals, situated (for London) 8–12 miles out It seems to be the intention of the Ministry, however, to use all the major hospitals as casualty hospitals, irrespective of their position and their structural strength There are other points of difference; for example, the unit which the authors call a casualty post has not so far been described in the official scheme

Mitchiner and Cowell's scheme appears in many ways to be an improvement on that officially proposed, but it is open to criticism at certain points The importance of rapid evacuation out of the danger area is well emphasised, but it is admitted that there will be a certain number of patients who will be unable to stand the journey, or who will require operation of extreme urgency It is not made clear how such urgent cases are to be selected, for the authors state that sorting of cases is neither possible nor desirable in the danger area Moreover, while their objections to mobile operating theatres are obviously sound, it is less easy to agree with their implied condemnation of the mobile unit intended for first aid and classification work only Nor does the present state of opinion among architects seem to justify the categorical assertion that "underground bomb proof buildings are not practicable" The various units of the casualty organisation have an early claim to such full protection as can be made available

It is hardly likely that any reader will agree about all the subjects treated in a book of this kind, but this does not impair its value Colonel Mitchiner and Colonel Cowell are to be thanked for producing the first complete and reliable outline of air raid surgery

Histological Technique for Intracranial Tumours

By DOROTHY S RUSSELL, M D Lond, member of scientific staff, Medical Research Council, attached to the Bernhard Baron institute of pathology, the London Hospital London Humphrey Milford Oxford University Press 1939 Pp 71 7s 6d

THE staining methods required for an adequate examination of cerebral tumours are so specialised that they are seldom dealt with in ordinary books on histological technique This admirable account by an expert on neurological oncology of the methods which she uses at the London Hospital fills a real need The information given is eminently practical there are no lists of alternative methods, but detailed descriptions of those stains which have proved reliable in the critical analysis of nervous tumours. Dr. Russell, following in the footsteps of Bailey and Cushing, has shown the importance of accurate histological diagnosis in assessing the prognosis and determining the treatment of these growths She gives a full account of the rapid method of examining smears from a minute portion of material removed at the time of operation, which is based on Dudgeon's "wet film" technique. By this means she is usually able to indicate to the surgeon in a matter of minutes the nature of any tumour, and the device is proving of increasing value to pathologists who have learned to use it The book is full of tips on the art of staining, and an agreeable innovation in a technical manual is the inclusion of beautiful photomicrographs showing what may be hoped for if Dr. Russell's instructions are followed Each histologist has his own favourite methods and if it is not presumptuous to criticise a personal routine which has proved so successful, we suggest that Bouin's fluid might be adopted as a fixative in place of alcohol for the demonstration of glycogen and Apathy's medium instead of glycerin jelly for the mounting of frozen sections

This manual should be on the staining bench, not the shelves, of every histologist whose work includes the examination of nervous tissues.

A Synopsis of Hygiene

(6th ed) By Sir WILSON JAMESON, M D., F R C P, D P.H., professor of public health in the University of London, dean and director of the public-health department of the London School of Hygiene and Tropical Medicine; and Lieut-Colonel G S. PARKINSON, D S O., M.R C S, L R.C P., D.P.H., assistant director of the department. London: J and A. Churchill. 1939. Pp 698 21*s.*

"Gold is refined in the fire" and, at the sixth refining, this work, first published in 1920, reaches a very high quality. It is essentially a book for the public-health worker rather than for the ordinary medical student Its strength and virtue consists in the fact that it is largely a compilation—though a readable one—from official reports and memoranda. Throughout there are references to original sources easily accessible to those who require further information In the present edition no fundamental changes of arrangement have been made but the sections dealing with occupation and health, hospitals, maternal welfare and milk have been rewritten and the parts relating to food and drugs and factories have been brought into line with recent legislation. That the information is quite up to date is shown by the inclusion of such legislation as the P H. (Aircraft) Regulations of 1938 and even the regulations under the Hydrogen Cyanide (Fumigation) Act, 1937, which are still in draft, and of allusions to the sulphonamide derivatives The section on refuse disposal includes the latest processes such as the Hyganic, Indore and Garchey systems: some reference to the plagues of crickets arising from even well-controlled refuse tips might have been included in this section. We find no mention of ashbins in the index although the ideal receptacle for refuse is described in the text No explanation appears to be offered of the inclusion of certain sections of public-health law in square brackets In another edition sections on the more biological aspects of public health—elementary genetics and eugenics, for example—would be welcome The absence of any reference to air-raid precautions is doubtless due to the impossibility of keeping pace with the changes in procedure: any account of methods current at the time of writing would at the time of reading be like the famous advertisement "That's A R.P.—that was!"

British Journal of Children's Diseases

IN the January–March issue Mr. Macleod Yearsley, in a paper on the Present Position of Tonsil Operations, deprecates indiscriminate tonsillectomy. He reviews recent literature and observes that tonsils should be removed when they are large, hard, and definitely obstructing the fauces, undoubtedly too septic for other treatment, or accompanied by cervical adenitis. According to Yearsley tonsillectomy is too often done in children and too rarely in adults.—Dr F. Parkes Weber writes on Transient Pulmonary Infiltration with Blood-Eosinophilia (Loffler's Syndrome), reporting an example of this allergic syndrome in a boy aged 10. The patient seemed well but had long suffered from running eyes and nose, and radiological examination showed an opacity in the lower lobe of the right lung He had an eosinophilia ranging from 7 to 13 per cent There was no evidence of intestinal parasites —Dr. F. R. B Atkinson contributes a paper on Chloroma in Children, of which he has collected 130 cases (91 in boys, 37 in girls, 2 sex not stated) reported since 1835 The commonest age was between 4 and 5 years: the youngest child was aged 4 months. With the exception of one patient (reported by Washburn), who was still well two years after the use of X rays no remedy has been found of any avail The paper contains a table on cytology and a chronological list of the cases, and a full bibliography —In a paper on Renal Dwarfism Mr. R M. Bates describes an adult mentally defective dwarf who during life and at necropsy was thought to be an example of renal rickets Histological examination of one femur showed no rachitic change and the parathyroid glands were normal The high blood-pressure and retinitis indicated chronic nephritis, but this presumably followed a renal and ureteral dilatation which occurs in the non-hypertensive variety of renal dwarfism. Bates suggests that dwarfism with rickets be called "renal rickets" and dwarfism without rickets be called "renal dwarfism."—The abstracts from current literature are devoted to acute infectious diseases

Journal of Social Ophthalmology

THIS new journal, which is printed in parallel columns of French and English, is the official organ of the International Association for Prevention of Blindness, and is issued free to members. The second number, dated last November, contains a symposium on myopia, which now ranks with corneal ulcers and accidents as one of the three main causes of blindness. Articles on the preventive measures adopted in various countries are contributed by Mr Bishop Harman for Great Britain. Prof. Martin Bartels for Germany, Mrs Hathaway for the United States, Dr. René Odic for France, and Prof van Duyse for Belgium. These authorities all agree on the value of sight-saving classes and schools, of which the first was instituted by Bishop Harman in London in 1908, and the balance of opinion seems to favour the education of myopes in special classes in ordinary schools rather than in blind schools or special schools. Association with blind children is condemned because of its depressing influence and also because of its cost, which is 13 times that in an ordinary school The aim of the special class is to train the child so that he can earn his living in spite of his short-sight, and in a full review of the subject Prof. Bartels gives a long list of possible occupations and another of those actually followed by ex-pupils.

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LONDON SATURDAY, APRIL 1, 1939

JOURNALS OR MICRO-FILMS?

IDEALLY every investigator should be acquainted, at every stage of his work, with all the relevant results obtained by other people Without such knowledge he may be ill-equipped for his task and may waste time and labour on what has already been done elsewhere It was to meet this need for current knowledge that the system of publication by papers in periodicals developed, and in the early days of modern science it served its purpose well enough Now however the system is clearly failing The number of scientific periodicals is somewhere between 30,000 and 40,000, of which perhaps half are still being issued, and they continue to increase both in number and in size To make matters worse a very large proportion of the papers they contain—some would say three-quarters—do not really deserve to be published at all, often they have been written only because published work is expected by the authorities who fill appointments and renew grants Through misdirected zeal, local patriotism, and the tradition of learned societies journals are often kept going long after the need for them has ceased, and unions of overlapping periodicals, of the kind that gave birth to the *British Journal of Ophthalmology* over twenty years ago, are far too few The general tendency indeed is towards separation rather than amalgamation But the overgrowth of periodicals is obviously defeating its own ends A scientific worker, unless he devotes an excessively large proportion of his time to reading, can cover only a small fraction of the papers even on his particular subject, and he is obliged to peruse much that is useless for fear of missing something useful Moreover, the cost of subscriptions to societies and to journals—of whose contents he probably reads less than a tenth—is a serious drain on his purse and may use up as much as 5–10 per cent of his salary If he relies on libraries he may find that the periodicals he requires are wanted by a dozen people at once, furthermore, because of their high cost, many of them never reach any but the largest libraries, and numbers of far from insignificant foreign journals never reach this country at all

To help the individual investigator to find what is worth his reading is the function of the numerous abstract journals now published But even these are becoming unwieldy Thus in two of the sciences most closely allied to medicine—biology and chemistry—the abstracts themselves, although so brief as often to be useless, have reached an alarming total bulk The annual *Biological Abstracts* has now become a volume of nearly 3000 pages, and the indexes, without which it loses much of its value, arrive nearly two years after the text In this latter respect *Chemical Abstracts* is much better served, but it has attained the appalling mass of three volumes a year, each of about 2000 pages Not very long ago the Medical Library Association, whose work deserves to be better known on this side of the Atlantic, set up a committee under the chairmanship of Miss ELEANOR FAIR to look into the problem as it affects medicine, and this committee, which reported in 1936, concluded that present methods of publishing abstracts in clinical medicine are neither satisfactory nor comprehensive [1] Much time and money as well as sincere effort, often representing personal sacrifice on the part of editors and scientists, are producing results that fall far short of goals that might reasonably be attained as regards scope, cost, promptness of issue, and the elimination of duplication Mrs CUNNINGHAM [2] is of much the same opinion and makes suggestions for meeting the need, with particular reference to America It is clear that while some papers are abstracted in several places, others escape all notice

That the better dissemination of scientific information is becoming urgent is evident from the many references now being made to it One aspect of the subject was examined by Sir WILLIAM BRAGG in his anniversary address to the Royal Society, which is the theme of a leading article in *Nature*,[3] and a chapter is given to it by Prof BERNAL [4] in a book we reviewed last week It is no longer enough, BERNAL says, to publish a record of every new observation, steps must be taken to see that every scientific worker receives just the information required and no more, in just the right form This will necessitate a limited distribution of detailed accounts for the specialists, a wider distribution of summaries or abstracts, and frequent publication of reports or monographs covering the whole of recent advances in any given field of science At the back of this system of distribution there must be readily accessible a collection of archives in which reference can be made to work of the past The problem, as BERNAL sees it, is a purely technical one that ought not to be difficult to solve The scheme he advocates would make the separate paper, not the periodical, the unit for publication Each paper would be submitted to a central editorial board for its specialty, and if accepted would be reproduced on a standard cinema film As many positives of this would be produced as were needed for distribution to interested specialists and to libraries, and the original master copy of the film would be stored so that copies could afterwards be run off on demand This would obviate the present wasteful system of reprints, in which the cost is borne by the author and the reprints are often unobtainable by those who need them most. The methods of microphotography in use for these purposes have lately been described by

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[1] Fair, E, *Bull med. Libr Ass* 1936, 25 33
[2] Cunningham, E R, *Ibid* 1938 26, 211
[3] *Nature, Lond.* March 11 1939, p 391
[4] Bernal J D, The Social Function of Science, London, 1939 p 291

RANEY,[5] PAGE and SAYCE,[6] and BRADFORD,[7] and preliminary arrangements are in hand in this country for making micro-film records at a cost of ½*d* per quarto or perhaps less.[8] The scheme outlined by BERNAL would be run in conjunction with a system of abstracts, which, he suggests, would be on cards to be sent to libraries and institutions, and appropriate selections would be sent to research workers who asked for them Reports, monographs, and original scientific works of larger compass than individual papers would be published as at present but under a more unified editorship. The only kind of periodical that would remain after these reforms would be that which publishes, in the form of notes, the latest scientific news and reflects " the relation of science to wider social problems "

Arrangements such as those proposed by Prof BERNAL would have many advantages, though, as he recognises, precautions would have to be taken against certain abuses. Vested interests would be opposed to it, but these he does not regard as serious, for very few scientific periodicals are commercially profitable We fear however that he minimises the inertia and conservatism of human nature Thus the need for some kind of projector or reading apparatus will militate against the extensive use of microphotographic films; and how are we to cater for those who like to read in the train, at meal-times or even in bed? If libraries ever come to consist mainly of films stored away in boxes, gone will be the pleasures and educational benefits of " browsing." It seems more probable that in this new revolution a small beginning will be made by wider application of the method already used by Science Service, Washington,[9] which leaves the present system of periodical publication untouched but employs microphotographs for longer papers that cannot readily be accepted by editors. A short abstract only is published in the journal and any interested person can purchase a film of the full paper from Science Service at a cost of about 1 cent per page. This scheme of "auxiliary publication," recently discussed again by SEIDELL,[10] ensures that papers are perpetually "in print," but no extensive, space-consuming stocks need be stored. All that is needed is the original document itself and the micro-film negative.

DIPHTHERIA

THE immediate use of antitoxin remains as imperative as ever for every patient suffering from, or even strongly suspected of, diphtheria But since 1927 there have been increases in the fatality-rate—recorded at first particularly from Germany—which could not be put down entirely, or even largely, to delay in diagnosis or to inadequate serum treatment.

In 1931 ANDERSON, HAPPOLD, MCLEOD and THOMSON[1] of Leeds described three distinct types of *Corynebacterium diphtheriæ*, which they named gravis, mitis and intermedius from the relative severity of the clinical pictures produced In its main features this discovery has withstood criticism and has profoundly modified our views not only on the efficiency of treatment, but also on the diagnosis and pathology of diphtheria The current number of the *Journal of Pathology and Bacteriology* contains five papers which deal with some of the more important questions raised by this new work In the first place, are the differences described by the Leeds workers definite and constant enough to justify the subdivision into three distinct types, and if so are the names proposed justified on clinical grounds? K and I ZINNEMANN,[2] like many others, are in entire agreement with the original findings and they also agree that the different types are remarkably stable through many subcultures in the laboratory. SHONE, TUCKER, GLASS and WRIGHT[3] confirm the important observation made by other workers that the differences between the three types of infection do not depend merely on differences in the time of admission to hospital or of beginning serum treatment They record however that in Liverpool it was the intermedius and not the gravis type which caused the greatest number of severe cases and deaths There is already abundant evidence that the relative severity of gravis and intermedius infections varies from district to district, and this discrepancy may be partly due to variations in methods of typing or of assessing clinical incidence For example, WILSON and GOLDSWORTHY[4] find that type-differentiation is most definite when rabbit or guineapig blood is used in the culture medium Factors of this kind are obviously important, and it is certainly desirable that standard media should be used in comparing type-incidence in different districts SHONE and his colleagues[5] point out that if notifications are used as a basis for the calculation of incidence wholly unreliable conclusions may be reached, for of 2960 cases notified as diphtheria they found by bacteriological methods that more than a third were falsely diagnosed It is not suggested that treatment should be delayed until the clinical diagnosis has been confirmed bacteriologically, but from the administrative and epidemiological standpoint the accuracy of bacteriological diagnosis must be very high if the total or the type-incidence is to be properly assessed Such considerations, however, do not seriously affect the main conclusion to which the bulk of recent work leads—namely, that despite variations in severity of gravis and intermedius infections the claims of the Leeds workers are justified, and that there is a definite relation between bacteriological type and clinical severity McLeod, Orr and Woodcock[6] rightly argue that post mortem demonstration of the lesions produced by the different types is the most convincing of all answers to criticism directed against the validity of type-differentiation In an analysis of 51 post-mortem examinations on patients who died of diphtheria they found that gravis infections produce a severe and generalised toxic effect on the viscera, associated with hæmorrhagic necrosis of the tonsils penetrating to the deeper tissues and involving the cervical lymph-nodes, whereas in mitis cases respiratory obstruction from the formation of a tough membrane extending down the air-passages is the usual cause of death Intermedius infections give a picture nearer to gravis than to mitis

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[5] Raney, M L, Microphotography for Libraries Chicago, Amer Library Ass, 1936 and 1937

[6] Page, B S, and Sayce, L A, *Libr Ass Rec* 1938, 40, 16.

[7] Bradford, S C, *Nature, Lond* March 11, 1939, p 393

[8] Information may be obtained from the hon secretary, Research Coördination Committee, 35, Gordon Square, London, W C 1

[9] Davis, W, *Science*, 1936, 83, 402

[10] Seidell, A, *Ibid*, March 10, 1939, p 219

[1] Anderson, J S, Happold, F. C, McLeod, J. W, and Thomson, J G, *J Path Bact* 1931, 34, 667

[2] Zinnemann, K, and Zinnemann, I, *Ibid*, 1939, 48, 155

[3] Shone, H R, Tucker, J R., Glass, V, and Wright, H. D, *Ibid*, p 139

[4] Wilson, H, and Goldsworthy, N E, *Ibid*, p 125

[5] Shone, H R, Tucker, J R, Glass, V, and Wright, H D., *Ibid*, p. 129

The further question why the gravis and intermedius types produce this picture of greater severity both in life and after death remains unanswered The possible explanations seem to be (1) that the gravis type produces a different kind of toxin from the mitis, (2) that it produces the same toxin in greater amount, and (3) that it produces some additional effect which cannot be attributed solely to toxic action The first explanation is perhaps the least likely, despite the relative resistance of gravis infections to antitoxin This resistance in itself does not necessarily point to a new kind of toxin, and there is a good deal of other evidence which suggests that all types produce the same toxin McLeod, Orr and Woodcock find that although post mortem evidence shows that toxic effects are in general more severe in gravis than in mitis infections, the histological differences are quantitative rather than qualitative On the experimental side Zinnemann and Zinnemann agree with other workers that in guineapigs ordinary active and passive immunisation are as effective against gravis as against mitis toxin, and that serum prepared against gravis toxin is no better than ordinary commercial antitoxin in protecting against gravis infection These two lines of evidence, the one histological, the other experimental, suggest that the second explanation may be the right one—namely, that the gravis and mitis toxins differ not in kind but only in degree, and that gravis infections are more severe than mitis because they give rise to greater amounts of an identical toxin The fact that gravis strains have been found by several workers to be relatively poor producers of toxin in vitro does not necessarily discount this view, since the conditions in vivo are unlikely to be the same as in the laboratory But this may not be the whole story There have been many isolated reports that gravis strains have a greater power of invasion than mitis, and Zinnemann and Zinnemann found that invasion of internal organs took place in 40 per cent of guineapigs inoculated with gravis organisms and only in 12 5 per cent of those inoculated with mitis organisms How important this greater invasiveness may be it is too early to say, but McLeod, Orr and Woodcock are possibly quite right in suggesting that gravis types give rise to a more severe disease because owing to their greater penetrative power toxin is more rapidly absorbed by the host

These papers make it clear that the conception of diphtheria as a pure intoxication may have to be profoundly modified There is no doubt that antitoxin saves many lives that could be saved by no other method of treatment, but many severe cases still fail to respond to large doses of antitoxin In this country there is still a case-mortality in the neighbourhood of 5 per cent, and this is liable to rise to 10 per cent or even more in epidemics especially due to gravis or intermedius types It is to be hoped that the recent work on the different bacterial types, while it may cause an adjustment of our views on the consistent value of treatment in the established disease, may for that very reason stimulate the more intensive use of active immunisation which can effectively prevent it

MEDICAL ASPECTS OF AVIATION

As we have already announced, the Secretary of State for Air has appointed a standing committee to advise him on the medical aspects of safety and efficiency in flying, and to study the best means of selecting flying personnel and maintaining their physiological efficiency This action shows realisation of the fact that in the advancement of aviation the man is as important as his machine—a fact liable to be forgotten in this mechanical age The committee, over which Sir Edward Mellanby, F R S, presides, represents all branches of medicine interested in aviation Psychology, which plays an important part in an airman's make-up, is represented by Prof F C Bartlett, F R S, of Cambridge University, neurology by Dr E A Carmichael of the National Hospital, Queen Square, otology, which includes methods of reducing aircraft noise and vibration and the improvement of aerial telephony, by Mr C S Hallpike of the Ferens institute of otology at the Middlesex Hospital, and physiology as applied to aviation, especially in relation to altitude flying and blacking out, by Mr B H C Matthews, Sc D, of Cambridge Sir John Parsons, F R S, is concerned with vision and Prof L J Witts of Oxford with aviation medicine, especially its application to the selection of candidates for flying On many questions these specialties will overlap, so that a close liaison will be necessary Air Vice Marshal A V J Richardson, director of medical services of the Royal Air Force, who formulated the plan for the research committee, is an ex-officio member, while Air-Commodore H E Whittingham is the chief executive officer

Medical research in aviation has hitherto been carried out mainly by the various R A F consultants The late Group Captain Martin Flack was, until his death in 1931, the British authority on aviation medicine, and it was chiefly through his researches and teaching that the present-day standards of physiological efficiency were adopted for the selection of flying personnel With Dreyer, Corbett and Bazett he had done much during the late war to establish the technique of oxygen administration for flying at high altitudes, and he also showed the value of oxygen for long flights at lower heights (10,000–12,000 ft.) as a means of lessening fatigue Group-Captain G. S Marshall, who succeeded Flack as physiologist, working with the Air Ministry's scientific research staff at Farnborough, has developed the present method of supplying oxygen at high altitudes, using pressure suits at heights above 35,000 ft., it was in one of these suits that the late Flight-Lieutenant M J. Adams attained a height of 54,000 ft—a record only recently broken by the Italian, Colonel Pezzi, when he reached 56,000 ft last October. Nervous factors concerned with flying and the mental attitude for aviation were studied from 1917 to 1920 by Henry Head, W. H. R. Rivers and Squadron-Leader P. S Rippon, and as a result certain tests for nervous stability and additional questions of family and personal history have been incorporated in the medical examination of candidates for flying. Group-Captain H. L Burton, the consultant in neurology, has continued this work, especially in connexion with prognosis where there are significant temperamental defects and excellencies, and Squadron-Leader G. O Williams, working with Prof. Bartlett, has apparently succeeded in foretelling the flying aptitude of candidates by means of sensorimotor coordinating machines and a form-relation test, which may revolutionise medical examinations.

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[6] McLeod, J W, Orr, J W, and Woodcock, H E de C *Ibid* p 89

The medical entrance examination for the R A F has been continually under review, and certain modifications have been made from time to time Group-Captain H. A Treadgold, when consultant in medicine, introduced the orthodiagram and electrocardiogram into the examination; he also established a relationship between body-build and functional efficiency and studied the significance of blood-pressure This work has been pursued by his successor, Group-Captain A F. Rook, who, in conjunction with Flight-Lieutenant Dawson, published an article on hypotension and flying in this journal last December. Wing-Commander E D D Dickson, consultant in otolaryngology, has demonstrated the loss of auditory acuity resulting from continued exposure to present-day aeroplane noise, and with Mr. A. W. G Ewing, Ph D, and Mr. T. S. Littler, Ph.D., of Manchester, has been investigating ways of protecting the ears of aircraft crews against excessive stimulation In ophthalmology, too, considerable progress has been made—first, by Group-Captain E C Clements, who instituted a training for heterophoria, to help prevent bad landings due to this condition, and who cooperated with the Air Ministry scientific staff in improving bomb-sight and cockpit lighting; and since 1934 by Wing-Commander P. C Livingston, the present consultant in ophthalmology, who has perfected the heterophoria training and has been mainly responsible for the development of new flying goggles and spectacles which counteract the effects of glare from the sun and from night-landing flares.

ANNOTATIONS

STORED BLOOD

EXPERIENCE of stored blood for transfusion has been limited in this country to small groups of patients In our present issue Dr. F Duran Jorda, who was head of the blood-transfusion service of the Spanish republican army, describes his conclusions drawn from experience with 9000 litres of blood obtained from 20,000 withdrawals and the classification of 28,900 donors His methods of withdrawal and storage appear complicated on paper, but medical visitors to his institute in Barcelona and those who have had the privilege of talking to him in London are impressed by the simplicity of the method in action It is clearly a great advance on any system that has been advocated in this country. The great advantage, especially in time of war, is that large quantities of blood (25–30 litres per hour) can be withdrawn and prepared for use in a short time under sterile conditions The apparatus is so devised that administration of the blood is very simple and can be carried out single-handed by anyone capable of doing a venepuncture The greatest danger with stored blood is hæmolysis, which lessens the therapeutic value of the blood and favours reactions after transfusion. The commonest cause of hæmolysis is shaking the blood in transit Duran Jorda has reduced movement of the blood to a minimum by his special ampoule This fact alone should attract close attention to his technique In time of war blood may have to be transported for long distances, and any system that prevents it from being shaken is clearly important The blood is stored under two atmospheres' pressure of air; this facilitates administration and, Duran Jorda believes, establishes an automatic bacteriological control. The oxygen present prevents the growth of anaerobes, while if aerobes are present they grow at the expense of the oxygen, thus converting the bright red oxyhæmoglobin into dark red reduced hæmoglobin. A glance at the flask, he claims, is sufficient to show whether the blood is sterile He advocates the use only of group IV–O blood for emergency purposes, for it is impossible to obtain accurate grouping under war-time conditions. He mixes the blood from different donors, because in this way the agglutinin titre is reduced and a more homogeneous blood obtained. Some patients received transfusions from as many as 96 donors without ill effects The work he describes is of biological interest as well as of practical importance in both peace and war

PSYCHIATRIC ASPECTS OF CRIME

THE official inquiry by Norwood East and Hubert[1] into the treatment of crime produced much that is of technical interest to psychiatrists in addition to the administrative proposals which are its chief practical outcome and which were commented on in our issue of March 11 (p. 583) During the last four years Dr Hubert has investigated more than 400 selected offenders and his conclusions as to the form, psychopathology, and therapeutic possibilities of their disorders are a valuable contribution to forensic psychiatry. A preliminary objection likely to be made is that his material might have been unduly

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[1] The Psychological Treatment of Crime By W Norwood East and W. H. de B. Hubert. 1939. H.M Stationery Office

—that is, unrepresentatively—refractory or responsive, depending on the accuracy of the initial estimate of suitability; since, however, the cases were selected by Dr. Norwood East, whose experience is unrivalled in this country, and by Dr. H. T. P. Young, the medical officer at Wormwood Scrubs, this objection cannot be regarded as valid. Hubert's methods have obviously not been limited to those of one "school"; general psychiatric principles have bulked larger than any routine procedure. It is not only the comparatively small group likely to respond to specialised psychotherapy that has been found accessible to psychiatric treatment. And, as the report points out, the practice of psychotherapy as a specialty divorced from general psychiatry is apt to lead to lessened efficiency and to unwieldy development of the therapeutic method itself. In the description of the treatment employed, there are some significant obiter dicta. Thus it is said that in the "complex method" the patient gains experience and a new pattern of behaviour in spite of the fact that this new understanding is not plainly expressed in words or its nature even completely grasped by him. Moreover, the challenging statement is made that the analytical therapeutic method is "primarily dependent upon an analysis of the form of abnormal function, and the content of the latter, in which there will be much individual variation, is only of secondary importance." These views are elaborated in relation to the individual conditions and their actual treatment, and are supported by detailed case histories. The cases were mainly men belonging to the recidivist class or guilty of sexual crimes. In both groups a distinction is drawn between those mentally normal and abnormal in the ordinary psychiatric sense. In selecting suitable subjects for psychotherapy from the normal group it was found that the time and mode of onset of the criminal conduct were important, as were the offender's reaction to its consequences and the history of his emotional development. Contraindications were the lack of any wish to change, a set personality, strong environmental influences tending to cause or perpetuate criminal conduct, an attitude of acceptance, resentment or resignation, or an inclination to use psychotherapy for ulterior purposes.

In the section dealing with sexual offences the important observation is made that pure perversion is rare; besides the main abnormality—e.g., masochism or homosexuality—there is almost always a conspicuous interest in other perversions often carried to the length of actual performance. In short, there is in these people a tendency towards general sexual perversion, which takes one or other form according to the environmental factors. From this follow some important practical consequences. It is usually assumed that homosexuality is not related to other forms of sexual perversion, and that it is due to environmental influences combined with a hypothetical constitutional factor, possibly endocrine. In accordance with this view the psychotherapist has in the past preferred cases with the fewest "feminine" characteristics especially on the physical side, and has regarded strong heterosexual interest also as a favourable point. This is not borne out by Hubert's experience. The feminine characteristics may indicate only that environmental factors were readily called into play owing to the patient's seductive appearance, and such cases may respond well to treatment. The absence of overt heterosexual experience is of advantage inasmuch as treatment can then be directed towards developing an unknown potentiality, rather than a quality which has already been fully explored by the patient and rejected as his main mode of sexual activity. Incidentally Hubert and East state that the popular psychological assumption of an intimate relationship between paranoid states and homosexuality is probably a misconception. No English work has hitherto dealt as fully as this report with sexual perversion and adolescent crime from the psychiatric angle.

SCHOOL MEALS AND MILK

ON Monday last the President of the Board of Education received a deputation from the Children's Minimum Council who submitted a statement on school meals and milk. The supply of these extras, said the deputation, does not go far enough, and the need for more generous provision will increase with the compulsory raising of the school leaving age without maintenance grants. The deputation proposed that (1) a daily ration of milk should be provided free to all children at elementary and state-aided secondary schools; (2) local authorities should be required to make provision for a midday meal at all their schools; (3) meals should be provided free for children coming from families in which the money available for food falls below a scale laid down by the board in accordance with modern scientific requirements; and (4) the board should enforce proper standards of accommodation, service, and dietary. Lord De La Warr, in reply, said that pressure is being brought to bear on backward authorities, but financial reasons (apart from any others) make the council's proposals unrealisable at the present time.

SURGICAL RELIEF IN OXYCEPHALY

MOST patients suffering from oxycephaly sooner or later complain of severe headache due to a raised intracranial pressure, and develop bilateral exophthalmos and papillœdema which finally results in optic atrophy and blindness. A number of operative procedures have been devised to save the patient's sight, including unilateral and bilateral subtemporal decompression, linear craniectomy, circular resection of the skull, and even resection of the optic canal, but none of these have proved successful. King[1] has now described an ingenious operation, the purpose of which is to allow a uniform expansion of the brain in all directions and at the same time to relieve the raised intracranial tension permanently. A large horse-shoe flap consisting of the scalp, galea aponeurotica, temporal fascia, temporal muscle and pericranium is turned down on one side of the cranium, hæmostasis being secured by a pedicle clamp and skin clips. A series of burr-holes 2 in. apart are then made in the exposed skull and the holes are joined by cutting the intervening bone. The dura is never opened. The effect of this procedure is to convert a large area of the skull into a crazy pavement of triangular and quadrangular bone fragments, and separation of the interstices allows the subjacent brain full expansion. King performed this operation on a boy of eight years whose vision was rapidly deteriorating and whose cerebrospinal fluid pressure was 400 mm. of water. The skull showed the typical 'beaten silver' appearance of oxycephaly and there was marked bilateral exophthalmos and squint. At the end of the operation the exophthalmos had quite gone on the side of the operation and had improved on the other side. The skull completely healed in five weeks and a radiogram taken two and a half months after the operation showed a great change in the size, shape and contour of the skull;

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[1] King, J. E. J., *Arch. Neurol. Psychiat., Chicago*, 1938, 40, 1205.

moreover, digital impressions had nearly all disappeared. Vision, which before the operation had been limited to a few feet, improved so that the patient could see the same objects at a hundred feet, and the mental condition also improved considerably.

TYPHOID ANTIGENS

THE extensive studies that have been made on the O and Vi antigens of the typhoid bacillus since these two components, and the corresponding antibodies, were first differentiated by Felix and his colleagues, have raised new questions at least as fast as they have answered old ones. One major discrepancy in behaviour became obvious at a very early stage. A heat-killed O + Vi strain was found to be incapable of stimulating the production of Vi antibody in the rabbit or the horse; but a heat-killed vaccine from any mouse-virulent (O + Vi) strain was, as Perry and Findlay had shown, capable of inducing an effective active immunity in mice. When passive-protection tests were used in place of active immunisation the results were different. Felix and his colleagues showed that an antiserum prepared by immunising rabbits with living O + Vi bacilli, which contains both O and Vi antibodies, is far more effective in protecting mice against virulent O + Vi bacilli than a serum containing the O antibody alone. In these tests, and in those of other workers who recorded analogous results, the living bacilli used for infection were suspended in broth or saline. Soon the discrepancies multiplied. It was found that the injection into rabbits of O + Vi bacilli killed with formalin, or of extracts prepared from O + Vi bacilli in various ways, would induce the formation of Vi antibody which agglutinated Vi, or O + Vi, bacilli to high titre. These antibodies, however, had little protective effect against O + Vi bacilli. Although they contained a determinant grouping corresponding to the specific grouping of the Vi antigen they were in some way functionally deficient.

Two recent papers by Henderson[1] of the Lister Institute add significantly to our knowledge, and to our problems. The first deals with differences observed when the living typhoid bacilli are suspended in a solution of mucin instead of in broth. The effect of this procedure, as earlier workers have shown, is greatly to decrease the average lethal dose of such O + Vi strains as Ty_2, from approximately 7,500,000 to approximately 500 bacilli. A pure Vi antiserum was prepared by immunising rabbits with a rough Vi variant, and a pure O antiserum by immunisation with an O strain. When these antisera were tested, in falling amounts, against living O + Vi bacilli suspended in mucin, it was found that their protective effect was substantially equal, the Vi antiserum giving slightly, but insignificantly, better results. When similar tests were made with O + Vi bacilli suspended in broth the results were very different. Both antisera were much less effective, as judged by the ability of a given amount of serum to protect against a given multiple of the average lethal dose; but the potency of the O antiserum under these conditions was much lower than that of the Vi antiserum. This observation establishes the important point that the protective power of an antibacterial serum is determined by the total number of bacteria against which it has to act rather than, or in addition to, the number of average lethal doses contained in the test inoculum. The O strain of *Bact typhosum* against which the O antiserum was prepared, and the rough Vi variant, were both lethal for mice in adequate dosage. Tested against these strains instead of against the O + Vi strain Ty_2, the protective effects of the O and Vi antisera were sharply specific.

In his second paper Henderson records further observations on the functional deficiencies of the Vi antibody produced by immunising rabbits with a Vi antigen prepared by extracting the bacilli with diethylene glycol. Although this antibody agglutinated Vi bacilli to approximately the same titre as an antibody produced against the living rough Vi variant, its protective power was about 25 times less. The antiserum prepared against the living bacilli gave complement fixation to high titre in the presence of either the whole bacterial cells or the diethylene-glycol fraction. The antiserum prepared against the diethylene-glycol fraction gave good complement fixation with the fraction itself, but only a trace of fixation with the intact bacterial cells.

INTRAVENOUS INJECTION OF ASCITIC FLUID

SINCE the reduction of the blood volume which takes place in shock is accompanied by concentration of the red cells, the ideal fluid for restoring the blood to its original volume must be plasma. Unfortunately this is difficult to obtain in sufficient quantity for the purpose, and various substitutes have been tried and rejected. Non-colloid salines are only of temporary value, and the results with foreign colloids, such as the gum solutions, have been variable. Animal experiments with ascitic fluid have been more hopeful, and Davis and Blalock[1] now publish a report on its use in the human subject. They found that the protein content of ascitic fluid varied between 28 and 45 per cent. of that of blood plasma. Intravenous injection of filtered ascitic fluid caused few reactions, but precautions had to be taken to give the correct group only. The largest quantity given was 2500 c.cm., and there were no ill effects from this. In a case of severe shock consequent on a gunshot wound of the abdomen ascitic fluid injected intravenously raised the blood-pressure, but this effect was temporary. It is suggested that concentration of the fluid may make it a more effective agent against shock.

PREMATURE SEPARATION OF THE PLACENTA

IN 407 cases of premature separation of the normally implanted placenta, among 36,465 deliveries at the Boston Lying-In Hospital during the last twenty-two years, Sheldon[2] found that the incidence of accidental hæmorrhage was 1 in 90. He recognises two distinct groups of ætiological factors: predisposing factors, of which toxæmia heads the list by its presence in 176 cases (43 per cent.), and precipitating factors, of which he considers labour by far the most important, 67 per cent. of his patients being in labour when admitted because of the hæmorrhage. (Genuine trauma, such as a fall or a blow, accounts for little more than 1 per cent. of the whole series.) The true relation between accidental hæmorrhage and the various toxæmias of pregnancy is thus raised again. Prof. F. J. Browne,[3] of University College Hospital, has convincingly demonstrated the importance of toxæmia and reported it in 19 of his 23 cases (83 per cent.), but his series was a very small one compared with Sheldon's, and the 43 per cent. given by the latter is presumably nearer the truth.

In the treatment of these cases Sheldon very wisely insists that delivery should be effected by whatever method produces least shock in the circumstances He emphasises a rule that all obstetricians recognise in theory but sometimes disobey in practice—namely, that the lost body fluids must be restored, and shock combated, before attempting to deliver the patient He unreservedly condemns cæsarean section, except when it is indicated by some obstetric complication, such as cephalopelvic disproportion or previous cæsarean section Hysterectomy was performed only 3 times in 107 cæsarean sections, he estimates the mortality from this operation to be 30 per cent For the most part, his patients had a normal delivery The result of this conservatism was that the gross maternal mortality was only 4 4 per cent, with a fœtal mortality of 54 3 per cent These figures make a convincing plea for the wider use of conservative treatment of these cases and demonstrate once again the limitations of cæsarean section

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[1] Henderson, D W, *Brit J exp Path.* February, 1939, pp 1 and 11.

[1] Davis, H A, and Blalock, J F., *J clin Invest* March, 1939, p 219

[2] Sheldon, C P, *New Engl J. Med* Dec 8, 1938, p 913

[3] Browne, F J, Antenatal and Postnatal Care, London, 1937.

IRRADIATION OF ZOSTER

Lomholt of Copenhagen has repeatedly drawn attention to the fact that local inflammatory processes involving cutaneous nerve endings can often be benefited by ultraviolet irradiation, and there have been many reports, both in this country and on the Continent, of the regression of lesions and relief of pain in zoster after irradiation These reports are confirmed by an analysis made by Devois and Proux[1] of 100 successive cases of zoster treated with erythema producing doses of ultraviolet light applied to the cutaneous lesions They divide their cases into early (seen before the fifth day of the eruption), intermediate (up to three weeks) and late In early cases, of which there were about 30, the results were uniformly good, the attack was aborted, early regression took place, and there were no painful sequelæ In intermediate cases the remaining vesicles and crusts cleared up but pain referred to the area of eruption often persisted for weeks or months Few of the cases with painful sequelæ were benefited, and incidentally these were not always relieved by X ray irradiation of the appropriate spinal region In early ophthalmic herpes the results were not so brilliant, possibly because irradiation had to be given more cautiously The success of this treatment seems to depend first on giving a dose sufficient to produce erythema and secondly on giving it early

HORSE-SERUM NEURITIS

Recording five cases of horse serum neuritis in males aged from 16 to 29, all following injection of tetanus antitoxin, Bennett[2] says that in a small minority of cases neurological complications occur at the onset or height of serum disease While cerebral, meningeal and spinal lesions may be found, the commonest localisation is in the peripheral nerves Mostly the nerves from the cephalic part of the brachial plexus (fifth and sixth cervical roots) are affected Severe neuritic pains are felt in the neck, shoulders, arms and legs, flaccid paralysis is observed usually within 48 hours and is followed by a gradual atrophy of the muscles Muscle tenderness, hyperæsthesia and dull pains persist for several weeks The exact cause of the condition is not known, but the most plausible theory is that of a perineural urticaria and œdema, which produces a compressive or ischæmic paralysis of the nerve trunks or peripheral nerves Almost all the reported cases have been in adults the average age being 26 and men are more frequently affected than women In more than half the cases the complication has followed the prophylactic use of tetanus antitoxin, but nearly all types of horse serum have produced it The prognosis is good, recovery taking place within six months, but about 20 per cent of the patients are left with residual weakness and atrophy In Bennett's series three recovered completely and two incompletely Treatment is mainly symptomatic

POLYCYTHÆMIA

The florid polycythæmic patient who complains of such symptoms as headache, breathlessness or paræsthesiæ is easy to recognise, and a blood-examination usually makes the diagnosis obvious But the disease is a chronic one and during its course assumes various forms which may pass unrecognised by one familiar only with the classical picture Rosenthal and Bassen[1] have followed 75 cases over a number of years in hospital or private practice, and point out that although most patients complain of the more direct effects of the increased number of red cells there are others who have no symptoms at all, and others again in whom vascular disease—gangrene of the digits, Raynaud's disease, cerebral, hepatic, or portal thrombosis—is the outstanding feature They found that the red cell count and hæmoglobin are typically high in the earlier stages, but may be normal later, or the hæmoglobin may fall while the red cell count remains high Later still there may be a rise in leucocytes or blood platelets, and such cases may show a widespread tendency to thrombosis without the blood count being typical of polycythæmia In the terminal stages the disease may present itself as a leukæmia, a thrombocythæmia, an obscure anæmia, or various combinations of these Since almost all of Rosenthal and Bassen's patients were treated with phenylhydrazine or X rays, it is difficult to say what effect treatment had on the course of the disease The increase in red cells in the so called polycythæmia vera may yet be proved to be compensating for some condition causing a diminished supply of oxygen to the tissues, in which case its reduction might be theoretically inadvisable A study of untreated cases is needed to answer the question whether it is wise to give such potent remedies as are now customary to patients with an unexplained rise in hæmoglobin and red cells

A SURGEON'S AUTOBIOGRAPHY

An autobiography of Anton von Eiselsberg[2] gives a happy and detailed account of a great career in surgery which seems to have been achieved without stress or difficulty The author had the good fortune to be a pupil and assistant of the great Billroth, and in 1901, having already occupied university chairs in Holland and Germany, he succeeded his master as professor of surgery in Vienna, in which post he remained for thirty years Eiselsberg passes over his association with Billroth rather rapidly, and the greater part of the book is concerned with journeys abroad, where he was always received with enthusiasm Since the narrative is meant chiefly for the general reader it contains but little clinical material but the story is told of an operation on the King of Greece (for empyema) at a critical stage of the world war, when the Allies and the Central Powers were competing for his favour There moreover, digital impressions had nearly all disappeared Vision, which before the operation had been limited to a few feet, improved so that the patient could see the same objects at a hundred feet, and the mental condition also improved considerably.

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[1] Devois A and Proux C *J Méd Paris* Jan 26 1939 p 70

[2] Bennett, A L, *J Amer med Ass* Feb 18 1939 p 590

[1] Rosenthal N R, and Bassen F A, *Arch intern Med* 1938 62 903

[2] Lebensweg eines Chirurgen By Anton Freiherr von Eiselsberg Vienna Tyrolia Verlag 1938 Pp [illegible] R.M. 10

TYPHOID ANTIGENS

THE extensive studies that have been made on the O and Vi antigens of the typhoid bacillus since these two components, and the corresponding antibodies, were first differentiated by Felix and his colleagues, have raised new questions at least as fast as they have answered old ones One major discrepancy in behaviour became obvious at a very early stage. A heat-killed O + Vi strain was found to be incapable of stimulating the production of Vi antibody in the rabbit or the horse; but a heat-killed vaccine from any mouse-virulent (O + Vi) strain was, as Perry and Findlay had shown, capable of inducing an effective active immunity in mice When passive-protection tests were used in place of active immunisation the results were different. Felix and his colleagues showed that an antiserum prepared by immunising *rabbits with living O + Vi bacilli, which contains* both O and Vi antibodies, is far more effective in protecting mice against virulent O + Vi bacilli than a serum containing the O antibody alone In these tests, and in those of other workers who recorded analogous results, the living bacilli used for infection were suspended in broth or saline Soon the discrepancies *multiplied.* It was *found that the* injection into rabbits of O + Vi bacilli killed with formalin, or of extracts prepared from O + Vi bacilli in various ways, would induce the formation of Vi antibody which agglutinated Vi, or O + Vi, bacilli to high titre These antibodies, however, had little *protective effect against O + Vi bacilli* Although they contained a determinant grouping corresponding to the specific grouping of the Vi antigen they were in some way functionally deficient.

Two recent papers by Henderson[1] of the Lister Institute add significantly to our knowledge, and to our problems *The first deals with differences observed* when the living typhoid bacilli are suspended in a solution of mucin instead of in broth The effect of this procedure, as earlier workers have shown, is greatly to decrease the average lethal dose of such O + Vi strains as Ty$_2$, from approximately 7,500,000 *to approximately 500 bacilli* A pure Vi antiserum was prepared by immunising rabbits with a rough Vi variant, and a pure O antiserum by immunisation with an O strain. When these antisera were tested, in falling amounts, against living O + Vi bacilli suspended in mucin, it was found that their protective *effect was substantially equal,* the Vi antiserum giving slightly, but insignificantly, better results When similar tests were made with O + Vi bacilli suspended in broth the results were very different Both antisera were much less effective, as judged by the ability of a given amount of serum to protect against a given multiple of the average lethal dose; but the potency of the O antiserum under these conditions was much lower than that of the Vi antiserum. This observation establishes the important point that the protective power of an antibacterial serum is determined by the total number of bacteria against which it has to act rather than, or in addition to, the number of average lethal doses contained in the test inoculum The O strain of *Bact typhosum* against which the O antiserum was prepared, and the rough Vi variant, were both lethal for mice in adequate dosage. *Tested against these strains instead* of against the O + Vi strain Ty$_2$, the protective effects of the O and Vi antisera were sharply specific

In his second paper Henderson records further observations on the functional deficiencies of the Vi antibody produced by immunising rabbits with a Vi antigen *prepared by extracting* the bacilli with diethylene glycol. Although this antibody agglutinated Vi bacilli to approximately the same titre as an antibody produced against the living rough Vi variant, its protective power was about 25 times less The antiserum prepared against the living bacilli gave *complement fixation to* high titre in the presence of either the whole bacterial cells or the diethylene glycol fraction The antiserum prepared against the diethylene-glycol fraction gave good complement fixation with the fraction itself, but only a trace of fixation with the intact bacterial cells.

INTRAVENOUS INJECTION OF ASCITIC FLUID

SINCE the reduction of the blood volume which takes place in shock is accompanied by concentration of the red cells, the ideal fluid for restoring the blood to its original volume must be plasma Unfortunately this is difficult to obtain in sufficient quantity for the purpose, and various substitutes have been tried and rejected Non-colloid salines are only of temporary value, and the results with foreign colloids, such as the gum solutions, have been variable Animal experiments with ascitic fluid have been more hopeful, and Davis and Blalock[1] now publish a report on its use in the human subject They found that the protein content of ascitic fluid varied between 28 and 45 per cent. of that of blood plasma. Intravenous injection of filtered ascitic fluid caused few reactions, but precautions had to be taken to give the correct group only. The largest quantity given was 2500 c cm, and there were no ill effects from this In a case of severe shock consequent on a gunshot wound of the abdomen ascitic fluid injected intravenously raised the blood-pressure, but this effect was temporary. It is suggested that concentration of the fluid may make it a more effective agent against shock.

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[2] Sheldon, C P, *New Engl J. Med* Dec 8, 1938, p 917

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[1] Devois A. and Proux C. *J. Méd. Paris* Jan. 20, 1939, p. 70.
[2] Bennett A. E., *J. Amer. med. Ass.* Feb. 18, 1939, p. 590.

[1] Rosenthal N. R., and Bassen F. A., *Arch. intern. Med.* 1938, 62, 903.
[2] *Lebensweg eines Chirurgen.* By Anton Freiherr von Eiselsberg. Vienna: Tyrolia Verlag. 1938. Pp. 560. R.M. 10.

THE FUTURE OF THE VOLUNTARY HOSPITALS

THE position of the voluntary hospitals is just now exercising the mind of everyone concerned with their work, and committees and conferences, official and unofficial, are considering their future. At the annual general meeting of the Manchester Northern Hospital, which each year has a deficit of between £4000 and £5000, Prof. J. S. B. Stopford, F.R.S., vice-chancellor of the University of Manchester, pointed out that the steady increase of costs is due largely to the advance of knowledge, and is therefore unavoidable. He summarised the three main proposals made to put the hospitals on a sounder financial footing: the first is a regional grouping of hospitals with pooling of their resources, the second is that voluntary hospitals should be subsidised by the state either directly or through the local authority; and the third is an extension of the contributory schemes. The argument in favour of regional grouping is that not all voluntary hospitals are in debt and if their total income was collected and reallocated they would be more or less solvent; but it is doubtful whether in these circumstances the income would not greatly diminish, since local patriotism and pride in a particular institution contribute largely to its support. The second solution, a state subsidy, was recently suggested by the Interdepartmental Committee on Nursing Services as a way of meeting the large additional expenditure that will be involved in improving the conditions under which nurses are employed, but hitherto there has been reluctance to accept grants that carry some measure of control, since the voluntary hospitals regard independence as an essential factor of their service to the community. There are signs that they are beginning to realise that a subsidy under defined conditions will not necessarily destroy this independence; and indeed some of them are seeking such help. In the House of Lords last week (see p. 785) the delay by a Scottish local authority in responding to an invitation for such coöperation was deplored, and nowadays payment to voluntary hospitals for accommodation placed at the disposal of such authorities is being made. As we mentioned last week the Prince of Wales's Hospital, Plymouth, has appealed successfully to the city council for financial support, and it has recently expressed surprise and regret at the refusal of the Devon county council to give help such as is given by the Cornwall county council. As for the third solution, Prof. Stopford believes that an extension of contributory schemes offers a chance of some relief *in the immediate future*; *but ultimately*, in his view, the best plan may be to finance medical work, including hospitals, by a state health tax graded like income-tax, according to capacity to pay. He realises that such a scheme would imply the institution of a national medical service but holds that the dangers of such a service could be avoided and that the advantages of the voluntary hospital system could be retained.

PROSTATIC RESECTION IN ELDERLY PATIENTS

CERTAIN important points in the treatment of prostatic obstruction in elderly men by resection are summarised by Dr. A. H. Gundersen.[1] After pointing out what has at last been generally recognised—namely, that success in perurethral surgery varies directly with the operator's experience—he emphasises the fact that the perurethral approach is ideal for elderly and debilitated patients, but that, to be successful, the resection must be carried out rapidly and with the minimum of hæmorrhage. Availing himself of Flocks's and Alcock's researches on the blood-supply of the hypertrophied prostate, he starts with two deep cuts at the five and seven o'clock positions. These bring him into contact with the large arteries to the subvesical and middle lobes of the hypertrophied gland, and hæmostasis is secured by immediate coagulation. The remaining intravesical projections, with the exception of the anterior lobe, then become relatively avascular. The only other situation at which extensive bleeding is likely to take place is at the apex of the prostate near the verumontanum, and this region is left untouched until towards the end of the operation. Adequate removal of all obstructing tissue is essential to success, especially in a debilitated patient with poor bladder musculature. In Gundersen's opinion, a second resection is often poorly tolerated, and if it has to be done it should always be postponed until the patient is afebrile and definitely on the mend. In deciding whether sufficient tissue has been removed a telescope with a retrograde view is a great advantage. It must never be forgotten that an enlargement of the anterior lobe is sometimes the cause of obstruction. When, during efforts to make lateral excavations of the lateral lobes, the prostatic capsule has been exposed, there may be troublesome bleeding from the venous plexus. To control this type of hæmorrhage, some form of hæmostatic bag will be necessary. Another feature of Dr. Gundersen's treatment is the use of 40 grains of sulphanilamide daily, with sodium bicarbonate, to reduce sepsis. This drug has also proved of value late in convalescence in clearing up infection after sloughing has come to an end.

DR. GERHARD WAGNER, the medical leader of the Third Reich, has died in Munich at the age of 50. He was one of the founders of the National Socialist Aerztebund in 1929, and in 1933 when the German Aerztebund amalgamated with the Hartmannbund he was elected their joint president. Later he was appointed Reichsärzteführer. He took an important part in drawing up the Reichsärzteordnung of 1936 which fixed the rights and duties of the doctor in National Socialist Germany.

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[1] Gundersen, A. H., *J. Amer. med. Ass.* March 4, 1939, p. 833.

LECTURES IN HOSPITAL ADMINISTRATION.—A three months' course of lectures and demonstrations on clinical practice and hospital administration will be given by Dr. J. V. Armstrong at the Brook Hospital, Shooters Hill, Woolwich, S.E.18, on Mondays, Wednesdays, and alternate Saturdays, beginning on April 17. Further particulars may be had from the medical officer of health of the London County Council, Public Health Department, County Hall, S.E.1.

SPECIAL ARTICLES

THE BARCELONA BLOOD-TRANSFUSION SERVICE

BY F. DURAN JORDA, M.D.
LATE CHIEF OF THE BLOOD TRANSFUSION SERVICE OF THE SPANISH REPUBLICAN ARMY

THE blood transfusion service in Barcelona began to function in August, 1936, and carried on till January, 1939. The technique invented by it was instituted throughout the whole of the republican army. The organisation was devoted to the performance of blood transfusions on a large scale—i.e., to the problem of providing as large an amount of blood as possible to meet the requirements of an army. The solution of this problem is the establishment of an organisation dedicated to the preparation of stored blood in a large town. Any organisation that tries to solve the problem by the use of fresh citrated blood or by direct transfusion from donors is likely to fail, because in a rush of wounded it is impossible to give all the required transfusions, both on account of their number and the amount of blood required. The only solution is a stock of well prepared and preserved blood. Even Tzanck, of Paris, a great believer in direct transfusions, modified his technique in September, 1938, and adopted ours for use in case of war. Not only must a service of blood-transfusion of citrated and stored blood be organised, but it must be established in a large town where the altruistic spirit of the citizens can be aroused and organised so that they volunteer as donors.

ORGANISATION AND EXAMINATION OF DONORS

A main object of a blood transfusion service is the proper organisation of donors: thus in 2½ years of work we never at any time failed to obtain donors, and we prepared from them 9000 litres of blood. The organisation of donors is threefold: by groups in (1) work places and clubs, (2) small towns and villages round the city, and (3) districts of the city. With this triple organisation the service can mobilise many donors at any moment and yet preserve the secrecy of military movements. The Barcelona service included 28,000 donors, whose blood was classified in September, 1938, as follows:—

Blood group	Number and percentage
IV–O	9190 (41 54)
II–A	10,080 (45 57)
III–B	2071 (9 36)
I–AB	779 (3 53)

The donor's blood must be examined as regards its agglutinins and agglutinogens. A blood count should be done and the hæmoglobin estimated. The Barcelona service instituted its own technique for this study. The blood was studied serologically, two reactions at least being tried for syphilis, one based on deviation of complement and the other on flocculation. The examination was completed by an inquiry into pathological antecedents and by a clinical examination (radioscopy, urine, reflexes). In Barcelona we made a systematic study of the physical type (Kretschmer) of the donor, who was also required to fill up a psychological questionnaire (Bernreuter's "personal inventory"). All the data acquired from these investigations were divided into three parts: one part relating to the transfusion service and the other two to anthropological and psychological studies.

EXTRACTION AND PREPARATION OF BLOOD

Biologically, the blood should be prepared in the following manner: citrate should be added in the proportion of 4 in 1000 and glucose 1 in 1000. The solutions should be made with fresh doubly distilled water.

The *extraction of blood* must be carried out with the greatest of care. In Barcelona we bled 150 donors in two hours, obtaining 25–30 litres of blood an hour. The technique must comply with both surgical and bacteriological rules. Blood is aspirated by suction (fig. 1), which must be so regulated as to avoid collapse of the donor's vein and consequent cessation of flow. The donor's arm must be perfectly sterilised and the selected area protected with a sterile towel. All the material is sterilised in an autoclave, except the needle, which is kept immersed in ether. The donor has to be bled fasting, so as to avoid post prandial colibacteræmia, excess of fat, glucose, and protein, allergens of alimentary origin that occur sometimes in blood plasma during digestion, and incompletely broken down amino acids due to hepatic insufficiency or to too large an intake of certain foods.

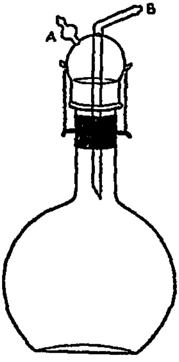

FIG. 1—Apparatus for collection of blood. A, valve through which suction is exerted; B, tube for entry of blood.

Filtration.—Our technique by which we systematically mix bloods of the same group necessitates the rigorous determination of the blood group at each bleeding, as regards both agglutinins and agglutinogens. Immediately after this has been done we filter the blood. Our method automatically allows us to filter the blood and to fill the tube in which the blood will be stored for transfusion (fig. 2). Since the whole operation of filtering the blood and filling and setting up the tubes takes only half an hour, there is no risk of hæmolysis due to chilling of the blood, and by immediate filtration after extraction we avoid hæmolysis such as takes place when blood is kept on ice a few days and loses to a greater or lesser extent the resistance of its corpuscles.

Mixed blood of same group.—All the procedures used in ordinary clinical blood transfusion are limited by the quantity of blood to be used, since all are done with only one donor. Yudin's method of using cadaver blood is useless when large quantities of blood are needed (in September, 1938, we prepared 832 litres of blood), for its efficacy is limited by the difficulties attending the collection of blood and by the need for all samples to be of the same blood group. Our solution of the problem of obtaining sufficient blood was to mix all bloods of the same group, and our experience of thousands of transfusions has amply confirmed the value of our technique. The only theoretical biological limitation was the possible presence of the secondary agglutinogens (Landsteiner's M, N, and P). However, it has been shown in practice by all those who are specialists in transfusion and by us that these agglutinogens have not the power to sensitise human beings. With our technique we have given to the same wounded man sixteen transfusions consisting of 4800 c cm. of blood from ninety-six donors, at sufficiently long intervals to produce sensitisation, without producing any signs of intolerance We had many patients who had four or five transfusions

The mixture of bloods of the same group gives the following advantages. First, a very homogeneous blood (biologically speaking) is obtained, with a normal quantity of cells, hæmoglobin, glucose, urea, and other constituents, and the product of the mixture of several bloods tends to approximate more nearly to ideal blood Secondly, a great biological advantage is obtained which deserves some attention If we make a quantitative study of the agglutinins of multiple blood, we find that normally the blood has an agglutinin value of about 1/8—very rarely 1/32–1/64 We have never found 1/100 or 1/200 (reported by other authors) Now, if the normal figure is below 1/32, the product of mixed bloods will show a still smaller figure. This fact, as shown by our researches, allows the use of group IV blood for all wounded, even in large quantities, without fear of reactions due to inverse agglutination This phenomenon may occur when a very anæmic patient not belonging to group IV is transfused with group IV blood, and it is due to the reaction between his agglutinogens and the agglutinins present in the group IV serum, if these are of high titre The Russian school says that this is possible when the agglutinating power of the transfused blood is greater than 1/30

Our experience of transfused patients, when the surgeon has not wished to operate because of the moribund condition of the wounded man, is that there is no inverse agglutination when our technique is used, and that it is possible to give 3500 c cm in one transfusion with universal blood to wounded men of another blood-group Two wounded men of blood-group II–A were transfused with 3500 c cm of blood of group IV–O, and one man of group I–AB was transfused with 2800 c cm of universal blood in two transfusions, and there are many cases of wounded men belonging to other groups who were transfused with smaller quantities of universal blood We can conclude therefore that no clinical accidents can be attributed to the secondary agglutinogens, and that the mixture of bloods is highly beneficial because it gives a more normal blood and removes the danger of inverse agglutination

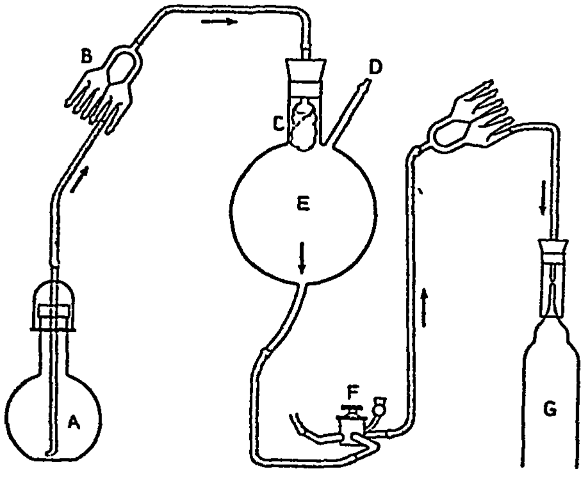

FIG 2—Apparatus for filtration of blood and filling of tube shown in fig 3 · A, flask containing blood ; B, key to which six flasks can be attached , C, silk filter , D, tube for maintaining vacuum in flask E in which blood is mixed , F, tap for control of entry of blood and for maintaining vacuum in tube G which is shown in detail in fig 3.

POINTS OF TECHNIQUE

Every method of transfusion, to be perfect, must fulfil three conditions · the possibility of transfusion in any place whatever, at any moment whatever, and by any member of the medical personnel Our technique has completely fulfilled these three conditions The apparatus consists of a sealed glass tube containing blood under a pressure of two atmospheres exerted by filtered air This pressure is the force that drives the blood into the veins. It has no action on the blood—i e , it cannot alter the constituents of the blood The action is exactly the same as that of the atmospheric pressure in mines or diving-bells.

Automatic bacteriological control is the most important part of our method and is what has without doubt placed it at the head of all other methods Physiologists have shown that a pressure of 16 mm. Hg is enough to convert 99 per cent of the hæmoglobin to oxyhæmoglobin if the blood is in contact with oxygen This action takes place in our tube owing to the amount of oxygen in the air All the blood pigment is changed to oxyhæmoglobin and the blood becomes a ruby red

If the blood is accidentally contaminated, the organisms will not grow unless they are aerobic, because the growth of anaerobic organisms is inhibited by the oxygen in the tube and by the intense oxygenation of the blood The growth of aerobic organisms will take place at the expense of the oxygen in the tube, and, since the tube is sealed, the oxyhæmoglobin will be reduced and the blood change from ruby red to dark red, thus showing that the blood is not sterile If the bacterial action proceeds further, the blood pigment alters to hæmatoporphyrin and the blood turns black This fact is fundamental to our technique and allows us to control the sterility colorimetrically.

Increase of cellular resistance—The intense oxygenation of the blood doubtless produces an increased vitality of the blood-cells, as shown by their greater resistance to hypotonic solutions of sodium chloride This fact is well known to the Russian school, who advise the addition of 1·2 c cm of hydrogen peroxide to every 100 c cm of stored blood.

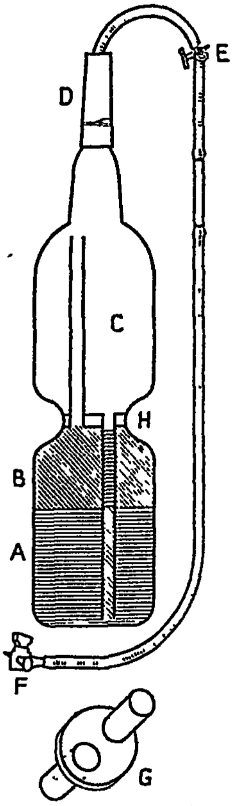

FIG 3—Tube for storage and administration of blood · A, sediment of red cells ; B, plasma , C, compressed air, D, sealed capillary end of tube in rubber tubing ; E, screw clip to control flow of blood ; F, two-way cock ; G, arrangement of small tubes in glass partition (H) dividing the tube into two chambers.

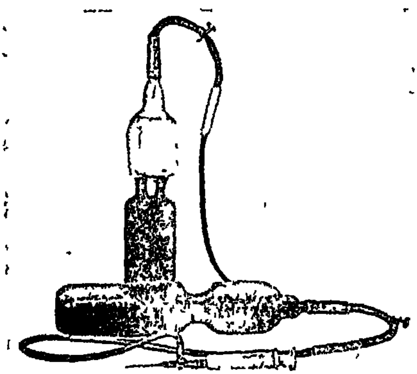

Fig 4—Photograph showing method of mixing corpuscles and plasma before transfusion

Increase of bacteriolytic power —The Russian school increase the bacteriolytic power of the blood with hydrogen peroxide This, like the increased cellular resistance, is effected by our technique per se without the addition of hydrogen peroxide

Impossibility of hæmolysis due to transport —The tube used by us for transfusion and transport of the blood is constructed in such a way that there is no free surface of blood Every movement transmitted to the tube is propagated throughout all the blood No oscillation or wave action is set up, and there is no splashing of blood against the sides of the tube Thus the blood is not shaken up and the red cells cannot become hæmolysed This container is the only one that safely prevents the hæmolysis due to transport of the blood

The tube consists of two compartments that communicate one with the other through two narrow glass tubes (fig 3) The compartments are separated *by a glass partition* which prevents there being any free surface of blood A glass tube runs from this partition to the top of the tube, and another from the same partition to the bottom of the tube Blood is drawn into the upper chamber by creation of a vacuum and falls by gravity into the lower chamber through the narrow glass tube Since the whole lower chamber is finally filled with blood, shaking of the tube causes little, if any, movement of the red cells After blood has been passed into the lower part of the tube the upper part is filled with compressed filtered air and the capillary tube sealed On standing, the red cells in the lower chamber sediment, leaving a clear layer of plasma above Turning the tube upside down produces immediate and perfect suspension of red cells, and this should be done before every transfusion (fig 4) The tubes allow of perfect observation of the state of the plasma and the degree of hæmolysis of the contained blood

Method of transfusion —The tube is prepared for use complete with the necessary apparatus required for administration of blood A venepuncture having been made with a needle attached to the two way cock shown in fig 3, it is only necessary to break the capillary neck of the tube for blood to be driven into the vein by the pressure of air present A correct venepuncture is facilitated by attaching a small syringe to one side of the two way tap The syringe can first be connected with the venepuncture needle by this tap, which, after it is clear that the vein has been entered, can be turned to connect the needle with the tube containing blood, and the syringe can be removed

The following points should be noted —

(1) The sterility of the blood must be observed *as shown by the colour—ruby red for sterile blood*, dark red or black for infected blood

(2) Estimation of the vitality of the blood by observation of the degree of hæmolysis If the tube is kept vertical and sedimentation has taken place, it is easy to see the overlying plasma and to note its colour The plasma should be amber and not red A note should also be made as to whether the line of division is evident

(3) The blood must be mixed by inverting the tube

(4) The blood must be carefully heated to 45° C in a water-bath The temperature must be exact If the water-bath is too hot, hæmolysis of the peripheral parts of the blood may take place If the correct temperature is not reached, there may be severe reactions in the transfused patient

STORAGE AND TRANSPORT

The blood is stored in refrigerators at 2°–4° C The Barcelona institute had its own means of transport to enable the blood to be taken to the required place with the greatest safety There were two lorries and a railway van, each fitted with a refrigerator Advanced military posts were provided with refrigerators which functioned well either by electricity, petrol, or paraffin For transport to places which could not be reached by vehicles the blood was carried in isothermic cases supplied with a refrigerating mixture

ORGANISATION OF INSTITUTE

The institute at Barcelona had a complete organisation for following up the results of each transfusion and the exact fate of each tube A card was made out for each tube and another for each transfused patient in addition to his clinical history

At the end of January, 1930, the institute had obtained 9000 litres of blood as a result of 20,000 withdrawals and prepared more than 27,000 tubes *A list of 28,900 donors well studied and classified* was available The institute further took over the preparation of all the sera necessary for grouping, the plasma of group I–AB and group II–A for the hæmostatic treatment of hæmoptysis, hæmatemesis, and hæmorrhagic states, and antipoliomyelitic and antityphoid sera from cured and convalescent patients One whole section was devoted to the treatment of measles, scarlet fever, smallpox, and other fevers, and after a time the institute also took over the investigation of paternity and the study of agglutinogens and agglutinins in bloodstains Finally a section was instituted for experimental biology Such was the institute that grew up out of the blood transfusion service in Barcelona, and a similar institute, wherever established, will be able to render great help not only in civil practice, but also in time of war

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King Edward's Hospital Fund for London —The King's Fund has decided, in view of the increasing complexity of hospital services, to supplement its annual publication of hospital income and expenditure by an advisory service which will it is hoped enable individual hospitals more easily to take advantage of the experience of others The fund has appointed Captain J L Stone, at present secretary of the Birmingham Hospitals Centre, to its staff from June next

A STATE MEDICAL SERVICE

DEBATE BY FELLOWSHIP OF MEDICINE

ON March 24 the Fellowship of Medicine held a debate at University College, with Mr. HERBERT PATERSON in the chair, on the motion "that the institution of a whole-time State medical service would be in the interest of the nation's health" *

Mr SOMERVILLE HASTINGS, proposing the motion, explained that the service he had in mind should provide every kind of care and treatment It should aim also at prevention, and should therefore be linked up with the preventive services. It should be free of charge, open to rich and poor, and staffed by whole-time officers It must be attractive to doctors and patients Private practice would be permitted, but as more and more doctors joined the service it would be progressively superseded The service must be introduced gradually, but there was no reasonable stopping-place between the first incursion of the state into preventive medicine and a complete state service Prevention meant treatment, and treatment meant diagnosis The great improvement in the public health during the last fifty years had come about largely through coordinated, cooperative preventive effort; there was an incipient public demand for the extension of those methods into the realm of treatment. At present disease was neglected in working-class homes through lack of money Early diagnosis could only be made in free centres.

Dr D STARK MURRAY, seconding, assumed that everyone agreed that the present position was deplorable The health of the nation could, he declared, only be improved by radical changes, extending to interference with the environment of the healthy. The British Medical Association refused to face the facts it had itself found, and its scheme perpetuated the worst features of the present services The problem must be considered as a medical one and freed from the economic barrier. An ideal medical service must be flexible and adaptable to variations in the population and the incidence of disease. The arrangements must be sufficiently uniform to allow staff to be readily interchanged and as good service to be given at Land's End as in the City of London The present uncertainty, financial difficulty, and lack of opportunity for research and study could only be obviated in a whole-time salaried service.

Sir HENRY BRACKENBURY opposed the motion He said that Mr Hastings ignored the preventive work that private practitioners did every day. It was neither good nor necessarily effective for the state to do everything for everybody; the responsibility lay also with the doctor and the individual citizen. The state should not provide free services for those who were well able to provide them for themselves The attempt to do this was bringing Australia and New Zealand to grief. The increase in the expectation of life of the average citizen was not mainly due to the public preventive services There was no reason why the state, having assumed a part of the public-health service, should necessarily go on to assume the whole The mover seemed to think that the doctor's whole business was to discover, label and eliminate some disease existing as an entity within the human body. He would divide his service into departments according to diseases, each with its army of whole-time officials, and bring in the general practitioner presumably to sort out the resulting muddle The doctor dealt primarily not with a disease but with a patient, and should be to his patient not merely a disease-discoverer but also a health-adviser, a sympathetic helper and an understanding friend The general practitioner must therefore be the basic factor in a medical service The principle might be best described as free contract, and the essential conditions were spontaneity, freedom and continuity. Neither the profession nor the public would tolerate regimentation Under a whole-time state service the doctor would tend to place first not the interests of the patient but the wishes of the body that appointed him or of his superiors in the hierarchy of the service The patient would to a large extent become the patient not of his doctor but of the service In spite of the advantages of a state service to the doctor, few family practitioners would willingly give up the satisfaction brought by helpful participation in their patients' joys and sorrows, responsibilities and difficulties He preferred a free-contract service —arranged by the state if need be—to a salaried official service; a whole-working-life service to a whole-time service; and a human service to a regimented service. A general medical service should be something more than a gigantic machine for grinding out the public health

Dr. FRANK GRAY, seconding the opposition, said that a patient had a good idea of the sort of treatment he was getting from a general practitioner, and if he was not satisfied did not hesitate to go to someone else. Government departments were not notably concerned with providing first-rate service but rather with appearance and cheapness, as in free education, and with evading trouble A patient would not take intimate personal problems to an impersonal government service "Coordinated and coöperative effort" in the L C C maternity and child-welfare services meant at present that a woman and her child passed through a series of unrelated departments. In case of emergency at night none of these was available, and she had to call in her private doctor, who knew nothing about the previous history. Since 1911 the only efforts to provide instruction in preventive medicine had been made by two groups of London doctors and not by the Ministry of Health. No more damning indictment of a government department could be framed. Disease in one member of a family affected all the others, and the family doctor was indispensable

The debate having been thrown open by the Chairman, Mr JOHN BUNYAN said that under National Health Insurance the dentist was not allowed to give the treatment he considered necessary, but was dictated to by an insurance society—the greatest racketeer of today. A state service would never succeed, for it would be inflexible and would stultify any new ideas

Dr. D. CLARK expressed the need of the general practitioner for help in his frequent rush times and for leisure and opportunity to keep in touch with advances in medicine These could be provided only by making him a member of a service.

Dr. GERALD SLOT computed that 40,000,000 of the population were either panel patients or dependants The remainder available for the doctors who were not of the panel class was only about 5,000,000 Most doctors received money from state sources, and most said they felt happier under the panel system than they had under the old days of contract practice Their complaint against the panel was that its facilities did not reach far enough. A patient who went to hospital had no free choice of doctor; nor, practically speaking, had those who lived in a rural area

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* A verbatim report of the debate will appear in the April issue of the *Postgraduate Medical Journal*

Dr G DE SWIET said that some doctors would not mind trying a state medical service if they were assured that they would not have their practices expropriated without just compensation He had been connected with a satisfactory service which had been domiciliary, open to patients within wide income limits, and run largely by the doctors themselves without interference from friendly societies

Dr. H H MACWILLIAM thought that the work of the doctor of ordinary ability and character would be more productive under some form of whole time service than under the present chaotic conditions Doctors did better work when free from the necessity to earn money by piece-work To found the state medical service on the municipal hospitals would meet all the criticism that had been expressed

Dr E M DIMOCK blamed the B.M A plan for doing nothing to improve the efficiency of the individual A state service would give the doctor many more contacts, and opportunity for self improvement

Dr C F T SCOTT saw in the advocates of the motion a "mid-European" confusion of thought and a belief that bricks, mortar and good bureaucratic policing could replace personal contact with the patient

MEDICINE AND THE LAW

Damages for Contracting Undulant Fever

IN the case of Harmer *v* Cornford, tried at Lewes assizes recently, the plaintiff obtained £105 19*s* 2*d* damages on the ground that he had contracted undulant fever through drinking milk supplied from the defendant's dairy Plaintiff's counsel explained to the court that this disease resulted from drinking the milk of cows suffering from contagious abortion Undulant fever, he said, was not commonly in the public notice, but was being diagnosed now with greater frequency as the medical profession realised its seriousness and its symptoms A significant symptom was a recurrent rise of temperature every evening: this occurred in mild forms of the illness in a severe form the illness was often fatal Mr Harmer was treated by his doctor for a feverish chill without improvement, when he went into hospital for an operation for hernia, it was not possible to operate because of his temperature, undulant fever was then diagnosed The plaintiff was one of many people at Bexhill who drank milk supplied by Mr Cornford, as in the water borne epidemic at Croydon, many were exposed to the risk without ill effect Medical evidence established that this fever could be contracted only from milk or contact with farm products; Mr Harmer's infection was probably due to his drinking milk in the morning undiluted and unheated, about 500 cases were reported yearly, the number was increasing with better recognition of the disease The only method of eliminating the germ, it was said, was pasteurisation Statistics appeared to show that women were less often infected than men and that children were almost immune A veterinary surgeon said that the defendant's herd was perhaps a little cleaner than the average, as soon as the diseased cow was detected, it was isolated

The plaintiff's case was framed in two ways It was based on the alleged negligence of the defendant, but Mr Justice Charles ruled that there was no evidence of negligence Alternatively it was based on an alleged warranty that the milk supplied was fit for human consumption The Sale of Goods Act, 1893, which embodied the existing common law, implies the existence of such a warranty The seller of unfit food may also be liable to a penalty under section 3 (1) of the Food and Drugs Act, 1938, which reproduces the now repealed section 2 (1) of the Food and Drugs (Adulteration) Act, 1928 This additional complication, it may be recalled was examined not long ago by the Court of Appeal in Square *v* Model Farm Dairies (Bournemouth) Ltd, where there was a question how far the liability to a statutory penalty excluded liability to pay damages to a plaintiff This question did not arise in Harmer *v* Cornford, in these cases of implied warranty the liability of the defendant to pay damages is almost absolute Mr Justice Charles observed that the plain fact was that Mr Cornford contracted to supply milk that was fit to drink, trying as hard as he could to do so, but failed The judge said there was no reflection upon the dairyman or his dairy, which appeared to be carefully conducted A Brighton pathologist, giving evidence for the defendant, had said that the purest milk might contain the germ, the proportion of members of the public affected by undulant fever after drinking ordinary milk was perhaps 1 in 100,000, the disease could easily be mistaken for many others, such as influenza and paratyphoid Another expert witness had said that the effect of making it compulsory for milk to be free of this particular germ might be to withdraw 40 per cent of the milk available for human food The learned judge thereupon interjected the light-hearted comment that, if this happened, we should all have to take to beer An alternative, as we have said before, is insistence on efficient pasteurisation

AUSTRALIA

(FROM OUR OWN CORRESPONDENT)

SCIENTISTS AT CANBERRA

OVER 1100 delegates attended the biennial meeting of the Australian and New Zealand Association for the Advancement of Science which was held in Canberra from Jan 11 to 18 Overseas visitors included Prof F T Brooks, Prof Ralph Carr, Dr Anita Mühl, Sir E John Russell, Prof N V Sidgwick, Sir John Flett, Sir George Simpson and Mr H G Wells The inclusion of sections of history, economics and social science, education, psychology, and philosophy is a welcome indication of the present tendency to extend the application of scientific thought and method to fields other than those usually recognised as pure science In spite of this, the congress was perhaps disappointing in that no constructive recommendation of any social significance emerged from it One two hour discussion on Science and Society represented the sole official attempt to relate the discoveries of science to the experiences of our daily lives However, one of the less obvious advantages of any congress of this nature is the opportunity it provides for personal contact between experts in different fields and consequently for the coördination of effort and integration of ideas

PHYSICAL FITNESS

In his presidential address to the medical section, Dr E Sydney Morris director general of public health in New South Wales, said that although the average Australian compared favourably in physique with the average person of other countries he fell short of what was possible considering his natural advantages Under modern conditions physical activities were subordinated to intellectual functions. It was necessary to establish equilibrium between mental and physical effort. While universal state education was enforced by law, the maintenance of physical health was left largely to the individual. Provision was necessary for the needs of three groups: children of pre-school and school age, adolescents, and adults. Effective medical supervision was necessary to protect undernourished or otherwise handicapped children against unsuitable exercises. To make any organisation generally effective full advantage would have to be taken of the press, broadcasting, and other methods of propaganda. Success would also depend on the organisation of leisure time so that the advantages of physical education could compete with commercial forms of entertainment.

Dr Fritz Duras, director of physical education at the University of Melbourne, pointed out that physical fitness implied something much wider than fitness for games or exercises. It should be approached through central research institutes, where the effects of various kinds of exercise on different representative types could be studied. With this should be associated the training of teachers, who would be responsible for the third stage of the process—the application to the community of the results obtained. (The Council of Physical Fitness is asking the federal government to provide lectureships in physical education and the necessary equipment at each of the Australian universities, at a cost of £12,000 a year.) Dr. Duras also discussed the radiological measurement of heart size after various types of exercise. He had found that heart size decreased during static work, increased during moderate dynamic work, and increased only slightly, if at all, during more strenuous work. *After exercise the size of the heart fluctuated* about a continually increasing mean, and might not return to pre-exercise measurement for 48 hours.

In measuring the maximum physical work of which human beings are capable Dr F. S. Cotton (Sydney) had found that champion cyclists can put out over half a horse-power for five-minute periods. This is materially higher than that previously recorded for Olympic oarsmen, in spite of the fact that their figures included a somewhat arbitrary allowance for work not used in propelling the boat.

Dr. E. A. Machin, principal medical officer to the education department of New South Wales, suggested that many school-children develop uneven shoulders because of the over-use of their right hands. In a survey last year of over 16,000 children attending state schools in New South Wales it was shown, he said, that 34 per cent. of boys had uneven or dropped shoulders. A heavy school-bag carried in the same hand every day will tend to pull the shoulder down, but this is by no means the only cause of dropped shoulders. They are associated with the general one-sided development of the shoulder-girdle muscles. The survey also showed a high correlation between wrongly designed footwear and deformities of the feet. Of the children examined 77·3 per cent. had only slight medical defects or none; 20·4 per cent. had remediable, including dental, defects; 1·9 per cent. had permanent but not seriously incapacitating defects; and 0·4 per cent. had defects causing permanent serious incapacity. Posture was good in 27 per cent.; average in 43 per cent.; below average in 26 per cent.; and poor in 4 per cent.

An examination of the food of public-school boys was discussed by Dr H. S. Halcro Wardlaw, lecturer in biochemistry at the University of Sydney. He showed that the consumption of building substances increased with the boys' weight, while consumption of energy foods increased more slowly and in proportion to surface area. Expressed in adult-male units the group had an average daily consumption of 2600 calories, made up of protein 95 g., fat 100 g., carbohydrate 352 g., and mineral matter 19 g. The group studied were taller and heavier than a comparable group of state schoolboys, and were very similar to a comparable group of English boys. The English schoolboy however has a total energy consumption about 10 per cent. greater than that of his Australian prototype. This difference is attributed to difference in climate.

NATIONAL INSURANCE ABANDONED

The federal government has now decided to abandon completely its national-insurance scheme. In a desperate attempt to preserve the plan, even if only in skeleton form, several less comprehensive schemes were considered, but a clear majority of the cabinet favoured the complete abandonment of the act. This decision is understood to have been come to, first, because of fear that the financial burden involved might stifle normal developmental expenditure if it fell simultaneously with the heavy defence programme and while the greater part of the Commonwealth is suffering from the effects of severe drought and widespread bush-fires; and secondly, because the act is highly unpopular throughout Australia, and its introduction against the wishes of the people might lead to grave political consequences. The opposition to the scheme in the ministry itself, though strong when Parliament adjourned in December, has increased immensely since. In the past two months members of the cabinet have moved freely in their electorates and have been *astonished at the intensity of public feeling* against national insurance. The abandonment of the scheme will render useless the considerable sums already spent on organisation and administration. Already 156 approved societies have been formed, 60 by trade-unions, 59 by friendly societies and 37 by miscellaneous organisations. These societies have incurred heavy expenditure in providing office accommodation and furnishings, in anticipation of the full operation of national insurance in September, and many men have left lucrative positions to take administrative posts with the societies. It is to be hoped that it will be possible to introduce a modified scheme when the nation is better prepared to handle developmental measures.

PARIS

(FROM OUR OWN CORRESPONDENT)

ARRANGEMENTS FOR VISITING DOCTORS

AT the annual meeting of the Association pour le Développement des Relations Médicales (A.D.R.M.) the founder and tireless leader of this organisation, Prof. Hartmann, reviewed its many activities during the past year. No fewer than 3252 persons were received in the offices of the association, and some 2000 requests for information and so on were made by letter. The association also gave its assistance to groups of doctors visiting Paris from England, America, and other countries, and arranged for some 80 students from abroad to exchange with French students and come to France for a month during their holidays. The association has also given wide publicity abroad to the educational facilities available at certain French provincial medical schools, such as those of Montpellier, Strasbourg, Nancy, Bordeaux and Lille, and has made arrangements with a reliable American publisher for the reproduction of French works abroad Not the least important of its activities is the organisation, in coöperation with the American Medical Society of Paris, of postgraduate courses in English this summer under the auspices of the Paris Faculty of Medicine A list of these courses, with information as to where to go and what to see, may be obtained from A D R M Salle Béclard, Faculté de Médecine, 12, rue de l'Ecole de Médecine, Paris

PROSECUTION OF THE DIRECTOR OF AN UNAUTHORISED PRIVATE ASYLUM

Article 5 of the law of June 30, 1938, requires official authorisation of anyone conducting a private asylum in which the personal liberty of the patients is restricted This law was recently invoked at Nantes, when a certain doctor was prosecuted for having treated patients in an institution not recognised by the authorities as an asylum The defendant claimed that his hospital had been run as an "open" or "free" institution, and it had not therefore been affected by the law of June, 1938 He insisted that he had never admitted mental patients dangerous to themselves or others, and requiring restrictive measures in the interests of public order His patients had, indeed, only been subjected to such supervision and protection as was required for their treatment or was needed for the maintenance of discipline in the establishment But according to the evidence of the prosecution, some of his patients were definitely insane And undoubtedly two of them had committed suicide while in this institution *The heaviness of the fine imposed on the doctor* in this case for having contravened the law doubtless reflected the determination of the authorities to discourage the running of private asylums by undesirables A trivial case in itself, perhaps But it is a sign of the times and of the tightening by the central public health authorities of the control of the practice of medicine throughout the country

ATTENDANCE AT ROAD ACCIDENTS

The report of the Union Nationale des Associations de Tourisme for 1938 includes an account of the system adopted for dealing with casualties on the roads The U N A T has organised 2408 first aid posts at the most frequented points on the French main roads, and has put in charge of each someone of good character and with a sedentary occupation, such as the keeper of a public house, a garage or a small shop, who can be counted on to be on the spot, particularly on the days when road traffic is greatest These people are not salaried, but are given 15 francs for every notified accident to cover telephone and other small expenses Their outfit includes two sets of forms and a list of approved doctors On one form they must notify the U N A T of any accident within 24 hours The other form is for the doctor who, if his account is not settled forthwith by the patient, sends a claim for 50 francs on this form to the U N A T The Union then pays the doctor 40 francs and retains 10 francs to cover failures to obtain the fee from certain patients When a doctor finds a colleague already in medical charge of a road accident, he puts in a claim for 25 francs and receives 20 francs from the U N A T This scale of charges has been found in practice to be satisfactory During 1938 the first aid posts of the U N A T notified 2402 accidents to 3386 persons 151 of whom were killed In 1937 the corresponding figures were 2439 accidents, 3376 victims, and 123 deaths, so that although there was little change in the number of accidents there was a considerable rise in the number of people killed.

IRELAND

(FROM OUR OWN CORRESPONDENT)

A HOSPITALS BILL

THE Hospitals Bill, 1938, which has given rise to certain apprehensions on the part of those interested in the voluntary hospitals, has now passed both houses of the Oireachtas On the face of it, it appears to be an innocuous and possibly useful measure, but it has some dangerous possibilities It provides that, on the application of the governing body of a voluntary hospital and with the consent of the local authority, the Minister for Local Government and Public Health may issue an "establishment order" in respect of such hospital which will have the effect *of putting the hospital under the control of the local* authority Hitherto such a change of control required the authority of an act of Parliament in each case, and two such acts were passed in recent years, dealing with fever hospitals in Dublin and Cork It was stated that two maternity hospitals—one in Cork and one in Limerick—were anxious to obtain similar change in their status, and that the bill was introduced to avoid the necessity of special legislation in these and other cases in the future In criticism of the measure it was pointed out, both in the Dáil and in the Senate, that an apparently harmless bill proposed to transfer important powers from the legislature to a government department, and that there was danger of the bill being used in the future to exercise undue pressure on a voluntary hospital Since the sweepstakes were established voluntary subscriptions have dwindled greatly, and most of the hospitals depend on grants from the sweepstakes funds to meet their annual deficits As the sweepstakes funds are in the control of the Minister for Local Government and Public Health, it is easy for him to exercise such pressure as will compel a voluntary hospital to ask for an "establishment order" A pledge was given by the Parliamentary Secretary, who was in charge of the bill, *that no* financial pressure would be exercised by the Minister in such a case In reply it was pointed out that such a pledge was good so far as the immediate future was concerned, but was of no avail in binding the successors of the present Minister

SWEEPSTAKE DRAW

In opening the draw of tickets for the sweepstake on the Grand National steeplechase, Viscount Powerscourt announced that the sum to be made available for the hospitals would be £446,456 The total sum accruing to hospitals from the twenty six sweepstakes that *have now been* held has amounted to £13,447,763

CENSUS REPORT

Another volume of the detailed reports of the census of the Irish Free State of 1936 has just been published It deals with ages, orphanhood, and conjugal conditions, classified by area only It is entitled Volume V, Part I, but is in fact the second of the entire series of volumes to be published Great care has been taken to make the record of ages as accurate as possible and to avoid the weighting which on previous occasions occurred on the ages ending in "0" or "5." Two facts stand out from the returns: the trend to an ageing population and the late age of marriage For example, the number of persons under twenty-one years of age has diminished by 47,000, or 5·4 per cent, between 1926 and 1936, while the number of persons over fifty-five has increased by 52,000, or 10 per cent. In regard to marriage it is shown that of persons of the age-group 25–29 no less than 82 3 per cent. of the males and 64·1 per cent of the females are single, while of the entire number of persons over fifteen no less than 56 8 per cent of the males and 47 2 per cent. of the females are single

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index

FROM AN ONLOOKER

I

To hear people talk, one would imagine that doctors are just ordinary men and women with a technical training. If true, this is a revolution For hitherto we have been something more; indeed something different: we have been members of a profession with a code of rules dividing us from ordinary men. The object of these rules, I take it, was to break down the hesitation a person might feel in consulting an ordinary neighbour, however skilful; and that is why we were supposed to respect confidences, abjure prejudice against particular races, classes or opinions, and pretend not to mind about money. Anyone abiding by such rules is far more to his clients than a medical expert: the original simple relation of man to man is superseded.

The right and proper relationship of doctor and patients seems to me to deserve closer attention than it gets from most of us; for it is, or should be, the basis of all opinions on medical organisation and the future of the profession (*pace*, of course, Herr Hitler)

In what we call the traditional relationship the doctor plays three parts, with varying emphasis: he is a money-earner; he is an expert; and he is a kind of father-substitute He is also a citizen, with a citizen's obligations; but as he tends to think the laws of society less binding than the laws of his profession he is less than other men a servant of the state This traditional relationship, established through the centuries, could be seen in fairly pure form in many an English town and village until quite lately. At its best it was profoundly satisfactory, for the man entrusting himself and his family to a capable practitioner had little reason to doubt either his loyalty or his knowledge The doctor, it is true, might put "professional etiquette" above the interests of a particular patient; but the upshot was likely to be the same, for the code itself insisted that the patient's interests should be considered before all others As for the adequacy of the help given, the whole range of necessary knowledge was held to be within a single doctor's comprehension; and although a second opinion would no doubt be invoked in emergency the basic fact was that the practitioner accepted full responsibility from birth till death and to the limit of his strength and skill

All this, it may be said, is unchanged in 1939, and it is true that the doctor still combines three parts as money-earner, expert helper, and father. But the congregation of people into big cities, the strengthening of the social conscience, the intrusion (or benevolence) of governments, and the advance of scientific methods, have wrought immense changes in practice as a whole. Not only has the emphasis changed, so that it often rests more strongly on money-making; not only does expert help require division of labour and elaborate equipment; but also the doctor has acquired new rôles He has now become to a greater or less extent an instrument of government, so that doctor and patient often face each other as state official and citizen; and he has become an instrument of research, so they may meet as scientist and "case" Unless we have clear ideas about the situation of the doctor as money-earner, expert helper, father, state official, and scientist, we are not really in a position to propose or oppose schemes for reorganising medical work

* * *

The doctor must live and must have money to live with. He may be paid by his patients or he may be paid by someone else; but he must be paid Even if he cares more for his work than for money his relations with his patients must eventually be coloured—and in fact they are deeply coloured—by the system on which his livelihood is secured

In the modern community there are really only three ways of paying doctors: (1) by fees for each service rendered; (2) by capitation fees for each patient on the doctor's list; and (3) by a salary. Our incomes may be much the same whichever is adopted, for fees and salaries are alike based on a consensus of opinion about the standard of living appropriate for medical men and women But though the annual totals in the pass-book may be the same the three ways in which they are reached are very different, and the doctor-patient relationship differs according to which is used In private practice, as someone has put it, we depend for our living on the misfortunes of our friends; whereas with a salary or a capitation fee this necessity is avoided. Doctors in private practice or receiving capitation fees must try to attract as many patients as they can; whereas those with a salary need not please their patients if they can please their paymasters

The three methods, with their important reactions on practice, arise from two political philosophies and a compromise between them; and those who plead for one or other often display the strong affective tone evoked by criticism of deep-seated beliefs The cleavage of opinion is seen if we reflect for a moment on the present situation of medicine. What is happening is this: the demand for medical care has become greater than ever, but so has the cost of providing it; and a smaller and smaller proportion of people can afford to buy it at a price that makes its sale profitable The current method of paying practitioners—the fee for each service rendered—has become a barrier that the patient cannot surmount and must try to circumvent. In such circumvention he is increasingly aided by the state, since efficient medical care is obviously in the national interest and must often be provided by the government if private enterprise fails

The hungry peoples want bread but cannot have enough because no profit can be made from selling bread at a price they can pay: we call this starvation in the midst of plenty. The ailing peoples want preventive and curative medicine but cannot have enough where doctors must make a living from what they sell. Instead of being too ill to see the doctor, like the lady in *Punch*, they are too poor to see him, which is almost as ridiculous.

Surrounded, as we are, by examples of prosperous practice in contented communities, this sounds like an over statement. I do not for a moment suggest that private enterprise does not still bring good returns and offer efficient service when conducted among the well to do. But the fact remains that it has now become definitely unprofitable to undertake efficient service among the poor. As medicine advances, the practitioner's training must be longer and his equipment more expensive. As medicine advances, there must be more specialists, and special and costly apparatus, for more elaborate investigation—and sometimes even treatment—of disease. The sick man can no longer be content with a single doctor, but often needs the aid of many, and of their machines. But only the rich can pay for the help that all these doctors are ready and anxious to provide, and the mass of the population does without the aid of scientific medicine or else gets it from semi-charitable or state provided institutions.

In good times much money can still be earned by practising among the rich or by giving incomplete service to the poor, but there is more and more competition to secure the comparatively small number of fees that are genuinely remunerative. In bad times the less successful members of the profession have to do so much of their work for little or nothing—lest they lose it altogether—that they can no longer afford to live, or educate their children, according to their station. The production costs of medical care have made it too expensive for most of its would-be purchasers.

The state of affairs today is not of course essentially new. Always there have been large groups of people who could not possibly pay for their medical care—people among whom medical practice was unprofitable. All that has happened is that the rising cost of such care has enlarged these groups, so that they now include most of the middle classes. By no means paupers, these have become (as the Americans call it) "medically indigent," since their resources seldom suffice to meet the full cost of unexpected illnesses and operations or even of adequate advice.

The new element in the situation is the growing assumption of medical responsibility by the state, which now employs a substantial proportion of the medical profession in filling the more obvious of the gaps left by the private enterprise of their colleagues and of charity. The more numerous the medically indigent become, the more this kind of provision increases, and the worse the outlook appears for the private practitioner.

* * *

Faced with financial loss, doctors, like other citizens, appeal to Cæsar. Either they say: The state must henceforward take care of everybody who cannot pay us properly (but not of anyone who can) so that we can go on practising at a profit as of old. Or they say: Let the state establish an economical medical service for the whole nation and pay us salaries for working it. In the United States the American Medical Association, taking the first line, is trying to preserve, and even enlarge, the field in which medicine can still be practised on a fee paying basis. In Soviet Russia the second alternative has been chosen, and the benefits of medical science are to be given to all citizens in the same way, whether their wages are large or small.

Each of these two opposite policies is a reflection of the economic system of its native country. The United States are capitalist, and the capitalist who finds himself in low water demands that the state shall stop interfering with the natural working of capitalism—except that it must protect him from competitors. The state, the capitalist holds, may and should undertake the unprofitable tasks that are of national importance, but must give him a clear field wherever profits can be made. The American doctor realises that his fee for service system will not serve the whole community, but demands that no one shall provide any other system for patients who are financially worth treating; private enterprise must be defended to the last. Soviet Russia, on the other hand, is a socialist country, and in a socialist regime the profit motive ceases to govern government, and the monetary contract between doctor and patient is abandoned on principle, whether it serves a purpose or not. Somewhere between these two extremes lies our own country—a capitalist state in which socialist and charitable measures have been used as a prophylactic against revolution; a capitalist stock bearing a socialist graft; a golden laburnum with branches of red hawthorn so big and flourishing that some mistake them for the tree itself.

According to British political philosophy the state may only interfere with industry reluctantly and at the last moment, to avert a breakdown; and it will usually subsidise a private enterprise rather than take it over. This distrust of fundamental changes and large planning, coupled with a sense for saving the situation, is seen in its relations with medicine. State and municipal hospitals and services were inevitable because no profit could be made out of a great mass of medical needs that cried to heaven for attention. But private enterprise was still regarded as the right and proper means of purveying medicine, and to secure its survival among the working classes the Government arranged a national health insurance scheme—with a subsidy from the taxpayer. The British Medical Association wishes to see this scheme extended as the basis of a Medical Service for the Nation. Meanwhile, however, the government and municipal medical services, though grudgingly established, have begun to attain the moderate efficiency of most of our other social enterprises, and so many doctors are already employed by them that they offer an alternative nucleus for a national service.

* * *

At the moment, then, the American doctor likes a fee from his patient, the Russian doctor likes (or has to put up with) a salary, and the English doctor is said by his representatives to prefer a capitation fee if he cannot get an ordinary one—but does not seem unready to accept a regular income. These points of view are what one might expect from the social and economic outlook of the various nations. But surely there is room for a little independence of thought among scientific and professional men? If our main object is (as it should be) to secure the best possible relationship between patient and doctor, and if this relationship differs (as it does) under the three systems, should we not try to base our preference on evidence and arguments rather than on political beliefs?

LETTERS TO THE EDITOR

MENTAL NURSING

Sir,—Dr. Pilkington's letter in your last issue emphasises a point that many people ignore—that mental nursing is something completely different from general nursing. A knowledge of anatomy and physiology is of very little direct value to the mental nurse since he has to deal with the patient as a personality and not from an anatomical or physiological point of view. At present the new probationer is thrust untrained into a ward which may contain anything up to one hundred insane people, some of them probably epileptics who may greet the newcomer with a fit, this to the uninitiated is bound to be frightening. It is only natural that the novice will copy the methods adopted by his seniors, themselves relics of a bygone day, and come to believe that force is of prime necessity in handling such patients. Thus the miserable picture continues of quiet patients standing idly about while noisy ones are man-handled. I would suggest that it is imperative that new entrants to mental nursing should at first be kept strictly apart from nurses who learned to handle patients by the methods of former days. Some such scheme as the following would achieve this.

For the first six months of his training the nurse would not enter a ward at all, his time being spent exclusively in the occupational therapy room and lecture theatre. Mornings would be devoted to lecture-demonstrations on the various kinds of patients; examples of each type from the stuporose to the maniacal would be shown and detailed information given as to the best way of managing them. Anatomy and physiology lectures with demonstrations of the cadaver could be given and these subjects dealt with far more adequately than by the once-a-week lectures now current. One can only feel sympathy for nurses who at present have to learn anatomy without ever seeing a dissected subject. Even more important still would be lectures on occupational therapy which the nurses would then regard as a normal method of therapy instead of as a waste of time and materials, a view only too common at the present time. Afternoons would be devoted entirely to practical occupational therapy. Here the nurse would become reasonably proficient in the various therapeutical crafts and have it drummed into him that the one sin which cannot be condoned is to see an employable patient sitting idle in the ward. After six months of such training the nurse would proceed for a similar period to the infirmary ward and thence by easy stages to the refractory ward. Only too frequently does one see young nurses introduced to their training via the refractory ward with obviously evil results.

It may not be feasible for individual hospitals to provide such training as outlined above, but it would surely be possible to establish half a dozen centres throughout the country towards the cost of which all mental authorities could contribute. The mental service is today top-heavy in all its departments in that its standards are set by men and women who learned their job in the bad old days when restriction and force were the order of the day. Such a scheme as I have outlined would do much to redress the balance and infuse new life and new standards into the service. Nurses would then go to the wards imbued with the latest knowledge as to how patients should be managed, instead of falling into the unfortunate ways of the oldest member of the ward staff, the chief charge nurse.

I am, Sir, yours faithfully,

A. M. Spencer

Banstead Hospital, Sutton, Surrey, March 27

ABRIDGED LIFE TABLES

Sir,—Medical officers who wish to construct abridged life tables should not be encouraged to accept too readily the contention of Drs. Hill and Hyder, in your issue of Jan. 28, that Snow's method (Suppl. to 75th annual report of the Registrar-General, part II) is applicable under modern conditions or the tacit suggestion that it is the best method. Moreover, some dissatisfaction may be expressed with a demonstration which omits to mention either the amount of arithmetical work or the mathematical assumptions involved in the method or to compare the method with other processes which may have equal, if not better, claims to consideration.

Snow's method is based on the assumption that the shape of the curve of q_x (the rate of mortality) does not vary appreciably from year to year or from district to district. It is true that the secular variation of this shape is not substantial and it is not surprising that results close to English Life Table No. 10 were obtained (by applying Snow's constants based on England and Wales to data from England and Wales). This test does not however deal with the conditions of practice—i.e., the construction of a sectional life table relating to an area smaller than England and Wales, such as a county. It is here that Dr. Snow's assumptions may under certain conditions break down. It may not be correct to assume that the relationships between rates of mortality and survival factors based on England and Wales will be closely reproduced in data relating to (say) Durham. A test of Snow's method against a full table based on a county would have been more convincing.

Generally statistical workers will have perhaps less confidence in empirical methods such as Snow's and more confidence in methods which adhere more closely to the special features of the data from which a life table is being constructed—for example, the method of G. King (Suppl. to 75th annual report of the Registrar-General, part I) or the method of Hickox shown in the *Journal of the Institute of Actuaries* (1930, 61, 86).

I am, Sir, yours faithfully,

B. Benjamin.

Dale Wood Road, Orpington, Kent, March 10

CARDIAZOL CONVULSION THERAPY

Sir,—We have read with great interest Cook and Ogden's article in your issue of Oct. 15, 1938, on the treatment of severe and intractable cases of manic-depressive psychoses by Cardiazol convulsions. We have tried the treatment on several similar cases but the time since treatment is too short to give a definite opinion. The following case, however, is well worth recording.

A banker, aged 62, has been suffering from a very severe form of involutional melancholia for the last four years. He showed signs that his condition was passing to senile dementia: his speech was monotonous and very poor in content, and there was always smacking of the lips. In the four years many forms of treatment, such as with opium, testicular extracts, and Benzedrine sulphate, were tried with no effect, and he appeared to be a lost case After reading Cook and Ogden's article, we decided to try cardiazol after the method of Meduna, the patient's heart, blood-pressure, and urine showing no contra indication After the first convulsion the patient, who formerly disturbed everybody with his stereotyped delusions, became quiet, after five convulsions he began to clear up, and now, after twelve convulsions, he is absolutely clear, smiles, shaves himself, takes interest in his dress, and has resumed his former activities

It appears therefore that cardiazol offers a cure for involutional melancholia even in a patient at such an age and after so many years of illness This therapeutic effect further emphasises the fact that the border between the depressions and involutional melancholia is not distinct

We are, Sir, yours faithfully,

HANS HOFF,
J A SHABY

Royal Hospital, Baghdad, Feb 28

COLOUR OF VENOUS BLOOD IN RHEUMATISM

SIR,—Some years ago when carrying out the ordinary sedimentation rate test on venous blood by Westergren's method, I noticed that in almost all severe cases of rheumatoid arthritis the blood was a curious pale red colour, very like Chinese lacquer The colour is seen most easily in bright sunlight or electric light At first I attributed this colour to the fact that arthritic patients cannot take much exercise, but against this I found that it was also seen in early cases of arthritis and in young athletic people who had suddenly developed rheumatism and who had been taking active exercise up to the time of the blood test Again, the red colour is present in hunting men who have been seized with lumbago and in early and chronic osteo arthritis If the blood is kept in a Westergren's tube for 24 hours it slowly turns to a dark mahogany colour which is normal for healthy venous blood I should be interested to know if any others have observed this almost constant *phenomenon*

I am, Sir, yours *faithfully*,

VERNON HETHERINGTON.

Weymouth Street, W 1, March 17

SALE OF PATENT MEDICINES

SIR,—A fortnight ago there was broadcast in the National programme a discussion on "patent" medicine The impression I had when listening was that one of the trio who engaged in it said that poor people had a perfect right to do what they liked with their money I find on reading the report in the *Listener* that I was not wrongly impressed Before pursuing this point let me quote something else the same speaker said "between the manufacturer and the public there is always the chemist Practically the whole of this trade passes through the chemist's hands a highly trained man with great knowledge of the goods that he sells, and the strongest sense of the dignity and importance of his job"

Now, first, I dispute the right of a manufacturer to persuade the poor to spend money on medicines which would be better spent on bread, second, as a chemist, I resent the compliment that I have a "great knowledge" of the goods which the secret medicine manufacturer makes I have not the slightest knowledge on the subject and I regard it as an impertinence that the "knowledge of the chemist" should be utilised to bolster up a traffic which offends practically the whole of the craft But there is another point There are in this country some 15,000 chemists' shops, there are also 135,000 shops whose owners are licensed to sell "patent" medicine by virtue of the payment of a yearly fee of 5*s*, and I am told on the best authority that the fees for the licences of a very large number of these shopkeepers are paid by manufacturers of "patent" medicines Digressing for a moment, may I add that the fees are sometimes paid, through the shopkeepers, in kind and not in cash, that is to say, five shillings worth of goods are given free to the shopkeeper, who instead of paying the five shillings to the supplier, pays five shillings for the licence Question Does the generosity of the manufacturer cost him in some cases more than fivepence? If my old friend the late Colonel E F Harrison was right it often costs less than that

How can the statement that "practically the whole of this trade passes through the chemist's hands" be reconciled with the fact that of the 150,000 people who sell "patent" medicines only 15,000 are chemists? It is common knowledge that most of the holders of patent medicine licences are owners of little shops patronised by the very poor

I am, Sir, yours faithfully,

F C GOODALL

Whitehall Place S W 1 March 24

INQUIRIES ABOUT HOSPITAL PATIENTS

SIR,—I was interested to read Dr Lockhart's letter on inquiries about hospital patients by their relatives, for the same difficulty occurs in this locality As a rule the staff of the local hospital are most courteous in replying to questions, both from relatives and from doctors, but I have had many complaints that relatives, and doctors, on telephoning to inquire, have had appalling delay in establishing contact with the person concerned When one realises that most calls by relatives are from a call box, possibly from a distance, where "three minutes" is the extent of the call, and that the ordinary working man cannot afford to repeat his three minutes up to fifteen minutes, at 6*d* a call, one feels that the first essential in good staff management of a general hospital is a thoroughly efficient porters' and house telephone service

I do not want to bring on my head the wrath of our otherwise excellent hospital telephonists, else my time spent waiting with my ear to the receiver would extend to infinity! Therefore I sign myself

Yours faithfully,

"THREE MINUTES PLEASE"

Bath, March 27

ROYAL SUSSEX COUNTY HOSPITAL, BRIGHTON —Speaking at a meeting on March 15 Dr Donald Hall, chairman of the governors of this hospital, protested against the heavy burden laid on hospitals by the rates Dr Hall said "As we extend our services to the public, so in proportion are we penalised by the municipal authorities" He was referring to the new Latilla department for the treatment of the deformed, the crippled and the injured which has resulted in an increase of £158 *per annum in the rates payable by the hospital* Dr Hall welcomed the statement that had recently been made by the Mayor of Hove that the time had come for closer coöperation between the voluntary hospitals of the twin towns and he reminded his hearers that another step towards this coöperation was likely to be taken soon He said he felt sure they would succeed and that eventually all would come together in one corporate body Once that was done it would be the aim of the governors to go further and to see the voluntary and public hospitals working hand in hand

PARLIAMENTARY INTELLIGENCE

ON THE FLOOR OF THE HOUSE

BY MEDICUS, M.P.

SOME of the best debating in the House recently has been on the Criminal Justice Bill. During last week clause 32 (abolition of power to pass a sentence of corporal punishment) was debated before Standing Committee A with Major Lloyd George in the chair. (Major Lloyd George by the way is a possible for the speakership and his conduct of the proceedings on the Criminal Justice Bill has enhanced his reputation.) The clause as drafted was presented for acceptance by the Government and the debate arose on an amendment by a private member continuing the power to inflict corporal punishment but making it necessary to have the sentence confirmed by the Court of Criminal Appeal. Speeches were not framed on lines of party politics and were always sincere and often passionately sincere. Mr. Rhys Davies, leading the Labour Party members on the committee, spoke of his experience on the committee which dealt with juvenile delinquency and signed the minority report in favour of abolishing the birching of boys. He said "I came to the conclusion that it was really an offence against human nature itself that society should impose this punishment upon boys." Mr Davies recalled that in the agitation for women's suffrage he said that when women came into public life the law would be more merciful. But it was not so. Women members on the standing committee supported flogging. One Conservative member, speaking against flogging, got "lit up" and said that another Conservative wished to impose the penalty of flogging for all men, whether for sexual offences, cruelty to animals, or under the Riding Establishments Bill, and said he knew that another Conservative regarded him as a "sloppy sentimentalist," which was heatedly denied. Lady Davidson said that "many of us are deeply anxious because of the lack of discipline which is apparent in the whole race at the present time." She spoke of standards of conduct going down and of the lack of religious and moral training in the home. Lady Davidson spoke with gravity and evidently with a deep sense of her responsibility and announced her vote against the abolition of flogging and her intention to do everything she could in the House of Commons to defeat it. Mr George Griffiths, Labour M.P., who has been soldier and Salvation Army officer as well, told of his own flogging by a farmer for stealing crab-apples from a hedge, and of the grudge he carried until manhood 'when a turn came in my life and I forgave him."

The report is too long to quote further but it is a human document worth reading and it is called "Official Report Criminal Justice Bill, Tuesday, 21st March, 1939," and is priced at sixpence.

* * *

On Wednesday the 22nd there was a debate in the chamber of the House on the report of the committee of inquiry into the anti-tuberculosis service in Wales. The report is a long one running to 291 pages and could have been compressed with advantage. The evidence on which it is based is not printed and is only available in neostyled form in the House of Commons library and this is an injustice to the committee who drew up the report and a difficulty for all who wish to consider it in detail which it well deserves.

The discussion to which the report gave rise was opened by Mr J. Griffiths, miner M.P. for Llanelly in South Wales, who spoke with force and fervour of the horrors of bad housing and bad conditions which the report reveals. Mr Griffiths mentioned that in the black-list of the mortality-rate for tuberculosis seven Welsh counties occupy the seven highest places—Carnarvon, Merioneth, Anglesey, Cardigan, Pembroke, Glamorgan and Carmarthen—and that each of the seven is on the three black-lists for tuberculosis, maternal mortality and overcrowding. Miss Megan Lloyd George strongly emphasised the failure of local authorities to carry out their duties and the feature of the report which draws attention to the poverty of rural areas "greater than in some of the industrial areas in South Wales." Poor nutrition and the other conditions which lack of means—poverty—brings with it were emphasised again and again as causes of the large tuberculosis-rate. On the purely medical side the necessary organisation exists to a large extent, but requires working properly, and the provision for the advanced cases of tuberculosis, so as to control infection in the home, should be increased. The only effective way to do that is to have small homes for advanced cases so that the sick people can be there and die there, near to their families and friends. At present the number of tuberculosis cases in Wales who die at home is very high indeed. But most important is the reform of local government. The total population of Wales is (1936) 2,516,880 and the estimated product of a penny rate for the whole of Wales (1936–37) was £44,096. In six counties the product of a penny rate is below £1000. But in some of the small "urban districts" with populations of under 1000 the product of a penny rate is quite insufficient for any useful services—three examples given are £16, £22, and £12. A drastic reorganisation of local government machinery in Wales is essential if the health problems are to be tackled. The B.M.A. "General Medical Service for the Nation" envisages:

(*a*) The creation of a system of complete and all-embracing units for local public-health administration by the removal of such functions from county district councils below a certain size, the county councils and their county district councils serving large sized areas being given all the public-health and medical responsibilities which county borough councils now enjoy.

(*b*) Limitation of these functions to the councils of areas with a population of not less than 75,000 to 100,000 according to the predominantly rural or urban character of the area.

(*c*) The treatment of hospital services and related medical services as regional problems.

The application, the drastic application, of these principles in Wales is shown to be urgent by this report. The same considerations however also apply to parts of England and Scotland. Wales has been investigated in detail but there is still uninvestigated darkness in many parts of England and Scotland.

In the House of Lords on March 27 the Cancer Bill was read the third time and passed.

FROM THE PRESS GALLERY

Safety in Mines

IN the House of Commons on March 21 on the vote for the civil and revenue departments, Mr DAVID GRENFELL raised the question of safety in mines It was a great error to think there was incompatibility between safety and efficiency Safety was mainly a question of good management Accidents had shown a steady tendency to increase The Royal Commission on Safety in Mines had recommended the adoption of a far higher standard of ventilation and the establishment of fracture clinics Occupational diseases such as nystagmus, silicosis, and dermatitis also deserved attention —Mr PEAKE, who spoke as a coalowner, said that there was no other industry where the injury rate was comparable with mining The industry itself must tackle the problem in a spirit of cooperation Several members of different parties expressed the hope that action would be taken in the light of the Royal Commission's report to promote greater safety in the mines of the country

Mr CROSS, parliamentary secretary to the Board of Trade, said that unhappily the statistics regarding deaths and serious injuries in mines for 1938 showed little or no improvement as compared with 1937 This year so far there had been a reduction both in deaths and serious injuries compared with the corresponding figures last year The Government accepted the report of the Royal Commission in its general sense and purport Any legislation in regard to it would be complicated, but in certain matters advance action on the commission's recommendations might be taken under existing powers Among these were the improvement of the ventilation in safety-lamp mines, the systematic sampling of the air current in such mines, the general use of sheathed explosives to increase safety in shot-firing, and the enforcement of suitable precautions against the inhalation of dangerous dust First-aid and health work was being accelerated and extended by the Miners' Welfare Fund Bill Neither regulations nor more inspectors would achieve real results by themselves without genuine and effective cooperation by the industry as a whole

Maternity Services in Dumfriesshire and Galloway

In the House of Lords on March 22 the Earl of MANSFIELD asked the Government if they were aware of the inadequacy of the hospital maternity services in Dumfriesshire and Galloway, due largely to the persistent refusal of the local authorities to coöperate with the directors of Dumfries and Galloway Royal Infirmary in providing the accommodation and facilities required This area of Scotland, which had a population of approximately 140,000, was served for hospital purposes by the Dumfries and Galloway Royal Infirmary Recently the waiting list of patients had been on an average no less than 110 Prof S J Cameron, the consulting gynæcologist of the infirmary, had given his opinion that the infirmary should refuse to take any further maternity cases until it had better accommodation for their reception Money towards extension, to include a proper maternity ward, had been collected, but the extension was held up pending response from the 1 local authorities concerned for a scheme embodying their requirements for maternity cases, though such a scheme had been asked for 2 years ago —The Marquess of ZETLAND, secretary of state for India said he understood that the local authorities would require about 70 beds, of which 10 would be maternity beds, but the question arose how the extension was to be financed The cost in capital outlay to the local authority would be something like £60,000 besides the cost of repairs and maintenance It was not unnatural that the authorities before deciding to invest this money in this particular institution should want to know what its financial condition was There was in fact an annual recurring deficit, and of the total of £77,000 which the infirmary itself proposed to raise for its part of the extension, only some £37,000 had so far been raised The Secretary of State for Scotland was prepared to place his services at the disposal of both parties if they thought he could help them to reach a satisfactory agreement —The Earl of MANSFIELD expressed gratitude for this reply He said that few infirmaries throughout Great Britain did not have a deficit The Dumfries infirmary had started a new contributory scheme which was bringing in several thousand pounds a year, and its finances were decidedly better than most of those in this country He had reason to think that the motion had had the desired effect and that the local authorities had been discussing the matter afresh

Anti-Tuberculosis Service in Wales

In the House of Commons on March 22, on the motion for the second reading of the Consolidated Fund (No 1) Bill, Mr JAMES GRIFFITHS initiated a debate on the report of the Committee of Inquiry into the Anti-Tuberculosis Service in Wales and Monmouthshire,[1] which revealed a truly terrible state of things and presented a problem which they must seek in every possible way to solve, whatever might be the effort needed, and whatever might be the expense Wales was shown to be an impoverished nation, and there were revelations of malnutrition, bad housing, poor schools, and inadequate social services All these, he claimed, were by-products of poverty and of the ignorance, inertia, and fatalism which poverty bred plus the subordination of the public welfare to narrow selfish interests The first message of the report to the people of Wales was that tuberculosis was a man made disease and that what they had to conquer was not a decreed fate but a social problem capable of solution The people of Wales who had been stirred by the report were prepared to act, and they expected the Government to act with them The report revealed what virtually amounted to a breakdown of local government over wide areas in Wales Wales had not the resources with which to cope with the problem

Sir HENRY MORRIS-JONES said that the report was founded on undeniable facts and that in the main the committee had established completely that the position in the principality was a serious one in regard to tuberculosis There was no more preventable disease among the major categories of mortality than tuberculosis, and there was nothing racial about it so far as Wales was concerned The most serious factor was the incidence of tuberculosis in rural areas The industrial areas rather surprisingly had come out of the inquiry exceedingly well Another serious factor revealed was that the number of persons who died from tuberculosis in institutions in Wales was much smaller than the number in England That would lead to the conclusion that either there was insufficient accommodation, or an unwillingness of people to go to institutions, or a lack of encouragement among the authorities, both local and voluntary, to make use of institutions, or a lack of any compulsion to go to any institution The mortality from cancer in Wales was greater than that from tuberculosis, and poverty certainly was not the cause of cancer Poverty was not actually the cause, but might be a predisposing cause of tuberculosis In his opinion the main predisposing causes in Wales were appalling housing conditions and bad nutrition Schoolchildren especially in the rural areas should receive an adequate midday meal every day of their school life The report revealed a condition of affairs which was preventable and which the expenditure of only a small amount of money would completely transform

Miss LLOYD GEORGE thought that the criticisms of local authorities in the report were justified One criticism stated that medical officers of health had year after year reported upon the bad conditions of housing and sanitation until they were tired of doing so and that the usual fate of their reports was that a motion that no action be taken was carried—often unanimously.

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[1] See *Lancet* March 18 1939, p 658

Mr. ELLIOT, Minister of Health, said that he supported very strongly the view taken by the committee that if all young contacts could be persuaded to attend for examination immediately they became aware that they had been in contact with an infective case many lives could be saved. The committee brought out most clearly the fact that the field of offensive against tuberculosis, and indeed against disease in general, covered very much wider ground than merely remedial or medical measures such as were talked about on purely health subjects He *had asked for the observations of the Welsh Board of* Health on the report, as well as those of the local authorities. He hoped that later it would be possible to call a conference, possibly in Wales, which he would attend and at which these problems could be discussed at first-hand. The report had recommended the freer use of milk, especially in the diet of children. With regard to the purity of the milk-supply he could inform the House that the number of attested herds in Wales had risen from 454 comprising 13,000 animals in February, 1938, to 1460 comprising more than 38,000 animals in August, 1938, and since then had almost doubled; well over 2000 additional herds were being tested with a view to qualifying in due course for a certificate of attestation

Sir FRANCIS FREMANTLE: Does my right hon. friend say that attested milk is really free from tubercle bacilli?

Mr. ELLIOT: Yes, certainly. The attested herds scheme is intended to eradicate bovine tuberculosis, *and the conditions of attestation include very stringent* rules in order to maintain the herd in a state of freedom from bovine disease A great advance had been made in the establishment of the state veterinary service. The admitted difficulty in obtaining supplies of milk in some rural schools in Wales must not be blamed all upon economic forces, or on the policy of the Government. In Wales, as in England, the rate of maternal mortality was coming down. The standard of midwifery was improving and more infant-welfare centres had been established. Against the black background they must bear in mind that progress had been made. As to housing, a grant quite out of proportion to any which had ever been made before was now available for rural housing. Nobody could complain that a grant of 80 per cent is insufficient to enable the local authorities to go ahead and tackle this problem, which was certainly very urgent. Overcrowding was a very serious matter in some of the counties. In the nine counties the number of overcrowded houses was 5700 in 1935 and 4100 at the end of 1937 There was obviously a large programme to be got on with, but the work in front of the local authorities was not impossible, nor was it unlikely to be achieved.

Dr. SUMMERSKILL said that the report had shown gross neglect by certain small authorities, but was also a glaring indictment of the Ministry of Health and of the Board of Education What had impressed her most during the debate was the extreme complacency of the Minister himself in the face of this alarming report. Was the House to be content with another conference and letters from the Government to the local authorities? Such matters as the disinfection of houses which had been inhabited by tuberculous people, the sharing of beds by healthy people and phthisical patients, the increase of heart disease through rheumatism contracted in damp schools with no drying facilities, and the death of children from tuberculosis due to infected milk required immediate action Something must be done at once about cleaning the milk-supply of the country. There were not sufficient beds for the treatment of tuberculosis in Wales, and a medical officer could thus not press patients to go into institutions; moreover when patients went into a sanatorium the public-assistance grant was decreased The best approach to this disease was to facilitate early diagnosis. One of the finest methods of reducing the morbidity and mortality-rate in Wales from tuberculosis would be to include the dependants of the insured worker under the National Health Insurance Act

Mr. LINDSAY, parliamentary secretary to the Board of Education, said that in 1937–38 14,500 children in elementary schools in Wales received free solid meals and 68,500 free milk whereas in 1927–28 only 2800 children had been given either of these advantages. Now 27 out of 30 Welsh education authorities exercised their powers in this respect. In 1927–28 the expenditure of Welsh local authorities on these services was £7000; in 1939–40 it was estimated that it would be £120,000. In some places *both pasteurised and T.T. milk were unobtainable* Moreover the question of price was sometimes a real difficulty All the difficulties mentioned in the report about schools in Wales could be solved by proper reorganisation.

Nutrition and Public Health

In the House of Commons on March 23, on the motion for the third reading of the Consolidated Fund (No. 1) Bill, Mr. LEES-SMITH raised the question of nutrition. The Labour party wished to criticise the attitude which a number of departments of the Government were taking towards nutrition. Medical men insisted that by far the most important element in the health and well-being of the people was the actual intake of food in the right quantities and the right proportions. Broadly the medical view was that half the people were sent into this world with jerry-built bodies, and that no amount of tinkering and dosing would give them a sound structure in which to pass the rest of their lives. The chief medical officer of the Board of Education published a short time ago his annual report on the health of the school-child and he gave particulars for 1937 of the routine medical examination among elementary school-children with regard to nutrition. By this method it was found that the nutrition of 15 per cent. of the children was excellent, that of 74 per cent. was normal, that of 10 per cent slightly abnormal, and that of 0 7 per cent. was bad. Some medical experts on nutrition regarded these results as fantastically wrong An alternative method of ascertaining the standard of nutrition was to estimate the quantity of proteins, vitamins, carbohydrates, minerals, and so on, required by a child at different ages and to calculate the cost per week of food containing these ingredients. If the family was not able to spend that particular sum of money on food week after week, the children would suffer from malnutrition. The B.M.A. said that a proper standard of nutrition required an expenditure of nearly six shillings per week per child, that nearly 30 per cent. of the population spent less, and that therefore nearly 30 per cent. of the children in the country suffered to a greater or less degree from malnutrition. Sir John Orr had concluded that unless four shillings a head was spent on food the children would be deficient in every constituent of proper nutrition. These discrepancies were most disturbing. Mr. Lees-Smith's view that the Board of Education's figures related to the children who were abnormally undernourished, because they took the undernourished children as the normal in the schools, had medical support

The remedies he proposed were: the giving of milk in schools throughout the year and to younger children as well as those of school age; the provision of cheap milk in areas other than the special areas where required; services in factories; the revision of unemployment scales; and the provision by the Board of Education of milk and meals for all children who came below the B.M A.'s scales. These schemes were not impossibly expensive and would be immensely effective.

Viscountess ASTOR said that safer milk was essential if people were to drink more milk. They had to make up their minds to have pasteurised milk.—Mrs. TATE said that no-one knew how many vital qualities of milk were destroyed by pasteurisation.

They wanted milk free from germs produced by herds which were free from disease She urged that a larger number of children should be medically examined at an earlier age, that the knowledge gained should be centralised and used for the good of the whole community —Dr **HADEN GUEST** said that the total cost of illness in this country, medical and surgical costs, was something like £300,000,000 of which at least one half was to be attributed to some form or other of malnutrition It was well worth while trying to avoid this extraordinary wastage of life force In Germany, he understood from Sir John Orr, considerable attention was being given from a realistic and perhaps even from a militaristic point of view to the nutrition of the lowest 10 per cent of the population The idea that they could set up an absolute clinical standard of nutrition was an illusion There must be a reasonable, common sense standard They needed an optimal condition of nutrition, and not a minimal one The B M A standard had often been misunderstood It arose because the Ministry of Health produced a standard of what they thought was necessary to spend on food to give a minimal standard of nutrition It was a very low standard, and not one which the B M A regarded as desirable

Mr **ELLIOT** claimed that the Government were dealing with the problem of nutrition both by investigation and action, which was producing a marked improvement in the health of the nation In the lower income classes malnutrition did arise from inability to buy adequate supplies of protective foods, but that was not the only factor Today 12,000,000 persons were employed in this country at a higher level of wages than they had had at any time since the war The cost of living had fallen three points in the past year and retail prices of food by five points There were many indications that the standard of nutrition of our people had improved A nutrition campaign was already in progress and he believed that they could very greatly improve the conditions under which the country was living today

Sir **FRANCIS FREMANTLE** said that in this matter they could not get a single standard which would be applicable generally Nutrition was not merely a question of the food consumed, but of the whole circumstances of the child's life Undoubtedly the greatest of those circumstances was poverty One of the factors in the lack of nutrition was restlessness and lack of sleep The essence of good nutrition was good cookery, and our people had not got the taste for good cookery This debate would help them to realise the importance of helping the process of improvement which was now going on so steadily and so hopefully in this country

QUESTION TIME

WEDNESDAY, MARCH 22

Supply of Milk to Welsh School-children

Mr **JAMES GRIFFITHS** asked the Parliamentary Secretary to the Board of Education the number of school children in South Wales who received milk at school, and the percentage of the total number who were in receipt of a free supply of milk —Mr **KENNETH LINDSAY** replied: On Oct 1 1938, the latest date for which figures are available, 144,126 children in public elementary schools in South Wales (including the counties of Brecon Cardigan, Carmarthen, Glamorgan Monmouth, Pembroke and Radnor and the autonomous urban areas within those counties) were receiving milk at school During the month of January 1939 53 730 children attending public elementary schools in those areas received free milk This figure is 37 3 per cent of the total number receiving milk on Oct 1, 1938, and 19 3 per cent of the total number of children on the registers of the schools on that date

THURSDAY, MARCH 23

Blankets for Emergency Hospital Use

Mr **KENNEDY** asked the Minister of Health how many blankets had been ordered for air raid precautions and emergency hospital requirements —Mr **ELLIOT** replied The number of blankets ordered for these services is 425,000

Verminous Beds in Ships

Mr **BEN SMITH** asked the Minister of Health whether he was aware that 1069 dirty and verminous beds were found in crews' quarters in Newport in 1937, of which 1068 were in British vessels and that 1637 dirty and verminous beds from crews' quarters were destroyed in Swansea in the same year, and whether he would give the corresponding figures for the other ports.—Mr **ELLIOT** replied I am aware of the facts stated I will have the available information on this subject examined and will communicate with the hon member

Water-supply and Sewerage and Civil Defence

Mr **SORENSEN** asked the Minister of Health whether, in view of the need for securing an adequate supply of pure and wholesome water and a satisfactory sewerage and sewage-disposal system in every village to be utilised in a national emergency to accommodate women and children evacuated from danger zones, he was prepared to give further consideration to making further contributions towards the expenses incurred by a local authority in providing a supply, or improving an existing supply, of water in a rural locality, and also making contributions to a local authority towards the expenses of providing or improving a sewerage and sewage-disposal system in a rural locality.—Mr **ELLIOT** replied In the evacuation arrangements steps will be taken to avoid areas where insuperable difficulties are likely to arise on account of water-supply or drainage It is not considered that the number of such areas will be large, and I am not satisfied that there is any case for grants from national funds for the purpose of improving water-supply or drainage in rural areas as part of the evacuation scheme

MONDAY, MARCH 27

Army Recruits and Dental Treatment

Mr **WHITELEY** asked the Secretary of State for War whether he was aware that when recruits were found to have unsound teeth recruiting sergeants were recommending them to join approved societies who supplied dentures as an additional benefit, and whether he was prepared to stop this unfair form of canvassing —Mr **HORE BELISHA** replied The suggestion made is difficult to reconcile with the fact that dentures are now supplied at the public expense to recruits who need them but, if specific instances can be given, investigations will be made

TUESDAY, MARCH 28

Public Assistance and Health-insurance Benefits

Sir **SMEDLEY CROOKE** asked the Minister of Health if his attention had been called to the practice of many public-assistance committees who, although disregarding the statutory amounts of national health insurance benefit and/or disability pension while the applicant was at home, took such amount into consideration as family income, and deducted from sick allowance when a patient was sent to a convalescent home or hospital thus depriving him of personal benefit, and whether, as in many instances there was a consequential disproportionate reduction in the family income resulting in hardship he would take steps to instruct these committees to cease such practice —Mr **BERNAYS** parliamentary secretary to the Ministry of Health, replied My hon friend's question involves legal questions on which my right hon friend has no power to give instructions to local authorities I am not aware that the practice of local authorities is giving rise to hardship, but if my hon friend has any particular case in mind I shall be glad to make inquiries into it and communicate with him in due course

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WESTMINSTER HOSPITAL, LONDON—Mr Bernard Docker chairman of this hospital, has given £25 000 to its rebuilding fund This gift brings the fund up to £60,000 An appeal was made on March 8 for £100 000, so that the new building might be opened free of debt on April 20

PUBLIC HEALTH

First-aid Posts and Ambulances (A.R.P.)

In view of the decision that one or more doctors should be in attendance at first-aid posts, fixed and mobile (A R P.), the schedules of the stores and equipment suggested for these posts have been revised. The new schedules are set out in circular 1789 (H.M Stationery Office, 3*d*) issued by the Ministry of Health to the authorities concerned The Ministry is purchasing the main items in the schedules and will distribute them Wherever possible the drugs and dressings are to be stored at hospitals, turned over with the normal hospital supplies and distributed when an emergency seems to be developing, non-perishable equipment will be stored wherever convenient and must be maintained in sound condition Mobile units, which are likely to be largely used in suburban areas, are to consist of such motor vehicles as Bedford trucks or Ford vans, carrying equipment and the medical staff but not the women auxiliaries to be attached to the unit, who will generally have to travel separately It is hoped to arrange for the allocation of one trained nurse to each post It is not proposed that first-aid should be carried out inside the vehicles but under the shelter of any convenient building, or even, if the weather is fine, in the open air. Specifications for the furnishing of the units, for which the Ministry will bear the cost, are set out with diagrams and measurements of detachable cupboards and splint boxes which can be made locally An annual fee (the amount to be settled after consultation with the B M A) may be paid in peace-time to the doctors allocated to first-aid posts, for supervising the collective training of the auxiliary personnel In fixed posts the personnel recommended is 60 or 40 per post, according to the area, with a 25 per cent reserve, the calculation being made on a basis of 6 posts per 100,000 population In mobile units 18 women auxiliaries are proposed, besides the doctor and nurse The numbers assume working in three 8-hour shifts. It is suggested that only 20 per cent of the total personnel need be recruited for whole-time service even in congested areas, and possibly none in posts located in existing medical premises The rest would presumably be on call and would go to their posts when warning is given

Circular 1787 (H M Stationery Office, 2*d*) describes the functions of an ambulance officer and deals with such matters as the earmarking of vehicles to be adapted in an emergency, the training of voluntary drivers (mostly women, but the incorporation of a substantial number of men between the ages of 30 and 50 is advised) and the plans for operating the service during air-raids

Part-time Medical Work for the L.C.C.

In 1936 the L.C C. approved the employment of part-time assistant medical officers on a sessional basis to assist in the antenatal clinics at three general hospitals The arrangement was for a year in the first instance and was subsequently extended to March 31, 1939 The hospitals and medical services committee is now recommending the organisation of this service on a permanent basis at five hospitals with remuneration on an annual basis of £90 a year for one session of approximately 2½ hours a week for 52 weeks a year and at the rate of £65 a year for each additional session. The annual leave is not to exceed 6 weeks, and the person appointed will
nominate and pay an approved deputy
absence from duty while away on leave or t
sickness, if he desires the council to pro
deputy his own pay while away during the pe
absence He will pay his own travelling expen
will work on the basis of a month's notice on
side The terms of service do not sound part
attractive, but practitioners will presumably
to learn more about the fate of the wome
examine than they are able to do at an an
centre not attached to a hospital, and those int
in midwifery may welcome the opportun
improving their technique in this way Othe
time appointments reviewed by the commit
those of district medical officers and assistant
medical officers, the proposals in regard to
and allowances being based on the amount
carried out during the past year Of the a
district medical officers whose salaries are
13 get a rise varying from £10 to £55, and
subject to a reduction of from £20 to £25.
district medical officers 4 will have the pro
allowance, granted in addition to the normal
reduced, and 2 will have it increased, the di
varying from £10 to £30 The revised s
salaries and allowances will remain in for
June 30, 1940, or until any further reorg
medical relief districts may necessitate their r
The work done by these district officers, o
there are about 100, is increasing. The nu
persons seen by them during 1938 was som
against 48,100 in 1937, the corresponding fi
attendances at surgeries and medical relief
were 184,200 against 181,300, and for do
visits 63,800 against 63,000.

Typhoid at Nottingham

A small outbreak of enteric fever came
in the Wells Road district of Nottingham on
and was briefly described in THE LANCET of M
Dr Cyril Banks, the medical officer of heal
week issued a statement saying th
has been traced to food which
distribution. "Its source was
the cause of the contaminat
medical officers are satisfied tha
of the patients had consumed
middle of February, and that t
is at an end, the source having b
may still be a few cases arising
at present under observation '

Billeting of Refugees

The unwisdom of making bil
without consulting the medical
the reception area was emphasise
Glegg (M O H for East Sussex)
Brewer (M O H for Swindon) at t
of the National Baby Week Counc
Morning Advertiser of March 23 D
to the knowledge of housing,
sewage-disposal and tuberculous infe
exclusively by the public-health sta
that the returns now being made by ru
should be regarded as giving only
These returns should be scrutinised by
responsible for health and for maternity
welfare, and the scrutiny should not
until the next crisis, for it might dem
need for more accommodation of children in

conference between the He also pleaded for aneption areas on the one medical officers of tha areas on the other Dr hand and of the evacgg's appeal for consultation Brewer, endorsing D with the medical officers, said that the Government had arranged for amateurs to make a house-to house investigation to find out what the public health departments knew already

PANEL AND CONTRACT PRACTICE

Not T orary Residents

A medical s e subcommittee has been dealing ith a case which a practitioner accepted a onsiderable nber of persons as temporary resi ents, and ceived the appropriate remuneration t did no ully understand what the term meant It d been noticed in the committee's office that this actitioner was accepting more temporary residents an his neighbours, and it was also observed that 64 thus treated he later accepted no fewer than off his permanent list Inquiries showed that out of 1 more recently accepted "temporary idents" ould not properly be regarded as such The terms of service contain no definition of what stitutes a temporary resident, and reference must made to regulation 17, which says that the removal an insured person shall be considered temporary when he removes he intends to remain less than ee months In the area of the committee concerned this case the ratio for payment is 6 to 1, that is, a practitioner accepts an insured person as a nporary resident and submits a continuation card owing that he has in fact provided treatment, he ceives the equivalent of eighteen months' remuneration—say 13*s* 6*d* This provision is made, of course, ause these patients are not treated on an insurance is; broadly speaking, it is only those who require nediate treatment that seek the help of a temporary tor It is clear therefore that for an insured person be accepted as a temporary resident he or she st definitely intend or expect not to remain more in three months in the neighbourhood, and in t he has to sign a declaration to that effect

The respondent practitioner told the subcommittee at his district has a notoriously floating population, t he admitted that he had entirely misconstrued definition of a temporary resident He was under e impression for instance that a domestic servant o was not sure whether she would remain in her ation could be regarded as a temporary resident the first three months The subcommittee found no difficulty in appreciating this point of view, for is well known that domestic servants are apt to ange their situations and those who framed the ulations were not likely to have arranged that ch persons should attract the equivalent of eighteen nths' remuneration to a practitioner merely because is uncertain whether they and their employers l get on well together for as long as three months he doctor's frank admission made it unnecessary he subcommittee to prove the facts He asked the amount irregularly obtained from the titioners' Fund should be repaid in full and he ted as a basis of his offer that he should repay ifference between the amount paid him in respect nporary residents over the past three years hat which he would have received if his propor- of temporary residents had been the average l practitioners in the county This amount was uted at £70 6*s* 3*d*, but the committee wished ve full credit to the arguments adduced by the or as to the peculiarities of the insured population is district, and they therefore decided that the to be repaid should be assessed at £70 It is to ecovered in three instalments.

The Practitioners' Fund

The Central Practitioners' Fund for 1938 has been finally determined at £7,514,903 compared with £7,200,125 for 1937 Insurance committees are now proceeding to distribute the balance available to practitioners, and the result in London is to make the value of a unit of credit for 1938 approximately 9*s* 3 6*d* The balance for distribution in London is £44,573 as compared with £68,958 for 1937

The Central Practitioners' Fund for 1939 has been provisionally determined at £7,252,000, and in notifying insurance committees of this the Minister has uttered his usual warning that the final determination of the fund will not necessarily enable any additional payment to be made to practitioners at a later date

Costly Medicines

Critics of national health insurance have from time to time alleged that insurance practitioners are debarred by their *conditions of service* from prescribing for their insured patients any medicines, however effective, if they are costly Panel doctors, such critics contend, have to do the best they can with cheap medicines A case reported to the Derbyshire insurance committee at their meeting on Feb 21 shows that this allegation rests on a misapprehension In this case the patient, who was *suffering from* paralysis, had prescribed for him by his insurance doctor a drug (Prostigmin) which during 1938 cost no less than £308 The total sum spent by the committee in supplying the patient with *medicine from* the beginning of his illness was £470 No member of the committee raised any objection to the expenditure, which was regarded as necessary to keep the patient alive

An insured person is entitled under the National Health Insurance Act to such "proper and sufficient medicines" as his insurance doctor prescribes *for* him, and a doctor is not *debarred from prescribing* any medicine, however costly, if he can show, should the question be raised, that it was necessary for the proper treatment of the patient

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ST MARK'S HOSPITAL, LONDON —The number of patients treated at this hospital during 1938 was the highest recorded, 1027 were admitted as against 997 in 1937 and 662 in 1924 The number of *patient awaiting admission* exceeds 250 and is *rapidly* increasing The space set free by the erection of the nurses' home is to be used to improve the operating-theatre unit and increase the accommodation in public and private wards Work on the second operating theatre will be completed this year About £33,000 is still required to cover the cost of the nurses home and the reconstruction work and extensions Steps are being taken to enlarge the accommodation of the X ray department and to install modern equipment The follow up scheme for cancer cases now provides a systematic record of all cases admitted to the hospital from 1910 onwards. Tumour cases have been grouped into three classes group A, or early operable group B, in which the muscle wall of the bowel has been penetrated by the growth, and group C, or late operable in which extension outside the rectum has occurred with invasion of the regional lymph nodes by the growth Results indicate that about a fifth of the cases fall into group A, a third into group B, and a half into group C.

OBITUARY

JOHN SAMUEL RISIEN RUSSELL

M D EDIN, F R C P.

THERE are probably not very many now who, reading of the passing of Dr. J. S Risien Russell *at the age of 75, will recall the great part he played* in establishing the position of the British school of neurology in the last decade of the nineteenth century, and in forming that tradition of combined experimental research and clinico-pathological study that has been at once the mark and the strength of neurology in this country.

Risien Russell was a graduate of Edinburgh University, where his M D. thesis obtained the gold medal. After qualifying in 1886 he spent a few months in post-graduate work at St. Thomas's Hospital and then went to the National Hospital, Queen Square, where he was successively resident medical officer, registrar, and pathologist He completed his training in Paris and Berlin, returning to Sir Victor Horsley's laboratory at University College to embark upon a course of brilliant experimental work before his appointment to the staffs of the National Hospital and University College Hospital. As his success in clinical neurological practice grew he developed another interest. His medicolegal skill became so well known that his services were constantly sought as expert witness in important litigation on such questions as the sanity of a patient In more than one famous case his opinion conflicted with that of experienced psychiatrists, and this led to unhappy differences and controversies. It is not however on his forensic exploits that his fame will rest but on his contribution to neurological medicine.

"It was in the golden age of British neurology," writes Dr. F. M. R. Walshe, "that Risien Russell took up this work. At that time Ferrier and Turner, Horsley, Beevor and Mott and others were in the full tide of their physiological researches, while on the clinical side Hughlings Jackson, Gowers, and Bastian were working with no less distinction and success at Queen Square. In this stimulating atmosphere Risien Russell's gifts soon began to bear fruit and in the *Philosophical Transactions* and the *Proceedings* of the Royal Society and in the pages of *Brain* there appeared from 1890 to 1900 a succession of papers from his hand, all of primary importance These papers include experimental studies on the functions of the cerebellum, upon the afferent and efferent pathways of this organ and the results of their stimulation and destruction, upon the constitution of the brachial and lumbosacral plexuses, and upon the effects of various lesions of the central nervous system upon the knee-jerk. In the clinico-pathological field he was not less active. One of his first papers, written with Dr. James Taylor, recorded a critical study of the value of the suspension treatment of tabes dorsalis for which so much had been claimed In 1900, with Batten and Collier, he published the classical paper on the malady they named subacute combined de[illegible] cord, a clinical account to w[illegible]ation of th[illegible] forty years, little that is mate[illegible]after the [illegible]

"By the end of this fruitful dec[illegible]an be add[illegible] gift for clinical teaching had laid[illegible] Russell's a[illegible] the extensive practice that ultima[illegible] founda[illegible] from original work, but he had [illegible] withd[illegible] neurology. There is still a freshne[illegible] his m[illegible] embodying his experimental work th[illegible] the [illegible] well worth reading for their content, [illegible] make [illegible] for their lucidity and orderly arrang[illegible] name is not now often found in biblio[illegible] work on the cerebellum, yet no-one engag[illegible] field can afford to neglect his papers They [illegible] a clear appreciation of the fact that cerebellar [illegible] is essentially a feature of voluntary as opp[illegible] reflex movements, and is thus a product of [illegible] motor activity—a notion that is only now [illegible] into its own. He pointed out also that t[illegible] effect of a progressively increasing asphyx[illegible] u[illegible] spinal cord is to exalt its reflex activity—as ex[illegible] in the knee-jerk—and then in more severe [illegible] to diminish and abolish this activity. In a[illegible] he could well stand comparison with the [illegible] amongst whom he worked.

"His gifts as a clinician are at once a [illegible] recollection and an inspiration to all who may [illegible] seen them in action He had an incom[illegible] command of language and was able to pr[illegible] vivid picture to the crowds who flocked to his [illegible] strations. Nor was there anything flashy ab[illegible] exposition, for as he developed it he clearly [illegible] before his hearers the train of his reasoning. [illegible] his kindness and fine consideration for his [illegible] an old house-physician may not forbear to [illegible] Whatever one's shortcomings one was never hum[illegible] by him, and his thoughtfulness and patience [illegible] never exhausted."

Dr. James Taylor writes: "Thirty years [illegible] Risien Russell was the best known of the youn[illegible] neurologists. His advice was fortified by w[illegible] clinical knowledge and sound common sense, [illegible] invested with sympathetic understanding, and [illegible] came to be almost the highest court of ap[illegible] in obscure and difficult cases. In the law-courts [illegible] was a clear and admirable witness. Perhaps [illegible] greatest gift was that of clinical teaching At [illegible] National Hospital where he became R M.O in 1[illegible] he was brought into intimate contact with Hughli[illegible] Jackson, Gowers, and Horsley, and later he wa[illegible] worthy successor to Gowers as a teacher of p[illegible] graduates in the outpatient department. He [illegible] very adaptable and when appointed to Univer[illegible] College Hospital he quickly established his reputat[illegible] as a really great clinical teacher of undergradu[illegible] students Risien Russell changed so little as [illegible] years passed that it was difficult to believe that [illegible] carried a load of more than 70 years His mi[illegible] and his manner too, were as they had always be[illegible] almost youthful. The cordiality of his friends[illegible] never varied, and those who valued him most w[illegible] those who had known him longest"

ROBERT McMILLAN BOWMAN

M.B EDIN., D P H.

Dr. Robert Bowman, who died recently at Bang[illegible] co. Down, was a son of James Bowman of Bangor [illegible] was educated at Bangor grammar school [illegible] Edinburgh University, where he qualified in 19[illegible] He entered the navy and served with the Do[illegible] al, taking part in the action at Zeebrugge on eorge's day, 1918 After the war he worked for in London and on returning to Ireland held a in Belfast under the Board of Pensions In 1920 ntered general practice in Bangor

ollowing the example of his father, Bowman ested himself in local administration, and in was returned at the head of the poll as alderman he Castle ward. In 1937 he was elected mayor of gor borough, and he was mayor at the time of death. He leaves a widow and two sons, of whom qualified at Belfast last year and the other is udent at the Royal College of Surgeons in Ireland

WILLIAM ISAAC CUMBERLIDGE

M B CAMB, F R C S

t may be said of Mr Cumberlidge that he set him a definite course and pursued it all his life, for ambition always was to become a surgeon and he d as senior surgeon to Leicester Royal Infirmary ar before he was due to retire He was born at on in Cheshire in 1880, the son of H J Cumberlidge yde, and from Macclesfield grammar school went a natural science scholarship to Christ's College mbridge He took honours in both parts of the tural-sciences tripos and then in 1902 went on to Bartholomew's, where he qualified in 1904 After se appointments at Bart's and elsewhere he took F.R C S in 1907 and went as house surgeon to cester Royal Infirmary in 1908 There his keen- in his work and his natural ability led to his tion to the honorary staff in 1911 During the he served as captain in the R A M C being t attached to the Fifth Northern Base Hospital Leicester and later to a hospital at St Omer

Perhaps the secret of Cumberlidge's success was at he was always dependable He possessed, too, gravity of speech and deportment even in his ung days which made him seem older than his ars and added weight to his opinions

He never married, but lived with his mother and o sisters He was a keen student of nature and ent much of his leisure walking He was a free ason and at the time of his death was G S W the province of Leicestershire and Rutland e shall remember him, says a colleague of many rs' standing, as one who never shirked a duty, l as a hospitable and loyal friend who never said unkind word of anyone

IAN MOUNT GRANT

M D EDIN, J P

Dr Ian Grant, medical superintendent of Glasgow yal Infirmary, died on March 19 at his home in asgow, after a long illness, at the age of 55

He received his early education at Edinburgh ademy and his medical training at Edinburgh iversity, where he graduated M B in 1907 and D in 1910 He also studied in Dublin and Paris ter holding house appointments in Edinburgh and ncoln he started in practice at Rugby in 1911 At e outbreak of war he volunteered for service and rved with distinction in Flanders and France with field ambulance, at a hospital, and with a Guards ttalion He was wounded in the knee at the cond battle of the Somme, and was finally invalided t of the service with the rank of major Later he s appointed neurologist under the Ministry of nsions for the Glasgow area, and part time medical perintendent of the Glasgow Eye Infirmary Here capabilities and tact as an administrator were en recognised, so that when the post of medical perintendent of the Glasgow Royal Infirmary became vacant in 1925 he was selected for this office He was always keenly interested in hospital construction and in the development of hospital services, and during his period of office he supervised the planning and construction of the Canniesburn auxiliary hospital for convalescing patients and the annexe for paying patients of the Royal Infirmary Later, when the need for extending the present infirmary became urgent and the adjacent premises of the Royal Asylum for the Blind became vacant, he did a great deal of extra and often harassing work in connexion with reconstructing this building as a hospital In the midst of this, about nine months ago, he was stricken with the illness of which, in spite of an operation, he ultimately died.

Although never a quick worker, Grant was at all times thorough and painstaking, never sparing himself in the service and interests of the infirmary, to which he devoted the whole of his energies He was a delightful host and had a large circle of friends, but he had little spare time for the ordinary round of social life He is survived by his wife, who has for many years taken a leading part in the promotion and organisation of entertainments in aid of Glasgow charities

ROY SAMUEL DOBBIN

O B E, M D DUBL, F R C P, F R C O G

Prof. Dobbin, whose death on March 21 was announced in our last issue, occupied the chair of midwifery and gynæcology at the Royal School of Medicine, Cairo, and was obstetric surgeon and gynæcologist to the Kasr el Aini Hospital. He was educated at Trinity College, Dublin, where he qualified in 1899, and afterwards studied in Berne, Vienna and Berlin He held various house appointments in Dublin, demonstrated anatomy at Trinity College, and for a time was bacteriologist at Steeven's Hospital He then became assistant master and extern assistant at the Rotunda and from there was appointed to his professorship in Cairo During the war he served as a surgical specialist with the British Expeditionary Force in France

"If Dobbin ever desired a monument," writes A K H "he has it in the great department of gynæcology and obstetrics at Kasr el Aini. It was his creation, cherished and served for more than thirty years, and he has left it in the hands of old pupils who had long since become distinguished and honoured colleagues His presence in the faculty of medicine was very potent indeed—a self-effacing power working like a beneficent enzyme The deep imprint of his personality, even after slight social contact, was extraordinary in one who studied and achieved quiet *Il apporte la paix* was said of him by people of perception But he brought much more than that, for he loved to foster and watch gaiety He continued in a sense with his own the charming fun of his elder friend, whom he called 'the Professor' the geo physicist Joly, who delighted in Dobbin's almost complete innocence of mathematics His letters—and even their envelopes—to children, to his friends, written in the bold script, beautiful in Arabic or English, which he had caught from well loved manuscripts, were a joy and privilege A blot would be elaborated to strut with a sword and feathered cap, and that would start a sprite of delicate phantasy and illuminate the margins of page after page

"He had in youth been the friend of artists great then and since In a walk through familiar streets he could give companions a glimpse through magic casements that seemed to be his common outlook, and he drew children to him by something childlike in himself whose own knowledge of men and things was wrinkled deep in time

"He could read a musical score and go home and play it from memory, a gift which left him once during months of illness and caused delight when it returned One knew him in facets, by glimpses I recall the surprise of his oldest friends when his priceless books, collected for years, first came to Cairo—his seven copies of Vesalius, his exquisite book of hours with the Tudor binding from Catherine the Great's library—and one learnt in the rare disorder of a great room ('*la cité des livres*') to turn heavy pages by the upper corner.

"Happiness he gave to others continually and dignity to ordinary life; and with him prestige—that impalpable thing—was never in hands more utterly safe"

Prof. Dobbin was elected a fellow of the Royal College of Physicians in 1932, under the by-law covering the election of non-members He has died at 67 years of age, and was unmarried

ELKIN PERCY CUMBERBATCH

M B. OXFD, F R C P.

Dr. Cumberbatch, medical officer in charge of the electrical department at St Bartholomew's Hospital, who died on March 24 at the age of 58, will rank with d'Arsonval of Paris as a founder of modern diathermy, and did more perhaps than anyone to place electrotherapy on a rational basis

He was the son of Charles Cumberbatch of Queen Charlton, Somerset, and was born there in 1880 As a student he was brilliant; he was a senior foundation scholar of St. Paul's School and left with a senior entrance scholarship to Keble College, Oxford, where he obtained an open science scholarship He took first-class honours in the final school of physiology and went on to St Bartholomew's Hospital as senior university scholar. After being house-physician at St Bartholomew's he became demonstrator of physiology in the medical school and chief assistant in the X-ray department When X-ray work was taken out of the old electrotherapeutic department in 1912 Cumberbatch was put in charge of the electrical department During the war he was in charge of the medical electricity department at the First London General Hospital, and the enormous amount of work he did there on muscle-nerve testing laid the foundation of his mastery of this branch of electrology.

[Elliott and Fry

One of Cumberbatch's greatest contributions was his establishment of a standard of orthodoxy at a time when the physiological effects of electrical currents were misunderstood. He accomplished this by his teaching, examining, and his writing in text-books and elsewhere His lectures for the D M.R E, his books "The Essentials of Medical Electrology" and "Diathermy," and his contributions to the "Encyclopædia of Medical Practice," the *Archives of Radiology and Electrotherapy*, of which he was author, and *The Lancet* and other journals characterised by simplicity, clearness and p taking thoroughness He was an experienced fair examiner, and his kindly manner never fluri the examinee His outlook was essentially acaden and his critical mind was slow to accept clinical rest not based on accurate observations. When diather began to be used in this country for purposes ot than surgical coagulation continental teaching at buted its results to some specific action rather t to the heat evolved Cumberbatch supported view that the effects were entirely thermal, and t has since proved to be correct Later he held same view of the effects of ultra-short-wave diatherm

At St. Bartholomew's Hospital Cumberbatch w C. A. Robinson developed the technique of treati pelvic and cervical infections by diathermy, and th were led to recognise a new syndrome—namely, t combination of lower backache, depression, toxic and arthritis in married women especially around menopause Cumberbatch also helped to perfect t technique of electrodiagnosis, which he thought t most skilled work the electrotherapist is called to do.

In 1921 Cumberbatch was president of the sec of electrotherapeutics of the Royal Society Medicine, in the following year he presided over section of electrology at the Bilingual Congres London; he was a member of the council of Rontgen Society and of the British Associatio Radiology and Physiotherapy, in 1933 he was first in his specialty to be elected a F.R C P.; in 1936 he was president of the section of electr therapeutics at the International Congress of Phy Medicine in London. Many will miss the cheerf welcome he always extended to visitors to his depar ment, and the enthusiastic instruction they recei there His ready encouragement, geniality unruffled temper endeared him to all, and he was staunch friend.

In 1918 Dr Cumberbatch married Isabel Gibbo of Valparaiso, and he leaves a widow and one and a daughter.

SAMUEL HYBBINETTE

Prof. Hybbinette, who was to have been gene secretary of the International Surgical Congress Stockholm in 1941, died very suddenly on Feb. 1 He was born in 1876 in the county of Stockhol From 1897 to 1899 he studied anatomy at t Karolinska Institut, and between 1901 and 1907 held various surgical hospital appointments. Studi abroad, in France in particular, widened his know ledge of languages and surgery, as did his attendan then and later at national and international surgic conferences. In his early years he came under t stimulating influence of John Berg—"Father Berg to his students. In the autumn of 1908 Hybbinett came to practise surgery in Stockholm, without an academic or hospital appointment to add lustre to h name. He had, however, already attracted attentio as a first-class anatomist and as a brilliant operator and when a vacancy occurred in 1921 by the promotio to Uppsala of the chief of a surgical hospital servic in Stockholm, Hybbinette was put in charge of it

Hybbinette's contributions to surgery reflected his flair for problems in mechanics and his manipulativ dexterity. Book-learning he distrusted, and though he had a remarkable knowledge of the literature of his own subjects, his work was marked b independent thought and initiative His mai interests were the surgery of the abdomen and bon plastic surgery He and Eden of Germany independently devised the procedure now known as the Eden Hybbinette operation for recurrent dislocation of the shoulder-joint As recently as November, he addressed the Swedish Medical Society on the subject of cleft palate and hare lip—conditions for which he had evolved an effective operative technique At the International Surgical Congress in Warsaw in 1929 he lectured on reconstructive surgery of the hip in cases of arthritis deformans He was in [illegible] and constant touch with surgical colleagues throughout the world, and was a member of the International Surgical Committee The choice of Stockholm for the coming surgical congress was made as a tribute to Swedish surgery in general and to [illegible] Hybbinette in particular

CLEMENT TREVES NEVE

M B LOND, F R C S

C T. Neve, who died on March 2 at his home Croydon at the age of [illegible], came of a medical family who are well known as missionary surgeons the North West Frontier, while his second name recalls his uncle, Sir Frederick Treves Neve was educated at St. Bartholomew's Hospital where he carried off the Kirkes Scholarship and the gold medal clinical medicine when he qualified in 1911 He resident appointments at Bart's, at the hospital known as the East London Hospital for Children Shadwell, and at the *London* Temperance Hospital interest in surgery was already aroused and in 3 he took his F R C S But he belonged to a generation of medical men whose work was to be interrupted, and in 1914 he joined up For the next years he served as a captain in the Royal Army Medical Corps Soon after his return to civil life he settled in Croydon In 1920 he joined the senior honorary surgical staff of Croydon General Hospital where he gave generously of his time, care, and skill to the patients He also served on the board management of the hospital. He was a quiet retiring man, but he inspired admiration by his abilities, and affection by his kindliness His leisure was divided between his garden, which he cultivated with informed diligence, and the open countryside which he greatly loved He leaves a widow, a son, and three daughters

HARRY BACON WILKINSON

M R C S

AFTER a long and painful illness Dr Wilkinson died at Southport on Feb 22 at the age of 71 He was the son of James Wilkinson, the proprietor of preparatory school at Southport He entered Guy's 1885 and qualified in 1892 He was in poor health that time and so he served in the mercantile service for a few years, afterwards holding appointments at Guy's, Nottingham Children's Hospital, and Worcester Mental Hospital He was then appointed deputy medical superintendent of the Plymouth Mental Hospital, a post he held until he retired in 1932, except for a time in the R A M C during the war, when he was neurologist of the Ministry of Pensions for the Plymouth district and served with the Mediterranean expeditionary force Serbia, Salonika, Egypt, and Turkey In medical practice his chief and almost sole interest was in neurology and psychology, and he put the whole of his energy into his work. Perhaps his chief regret towards the end of his life was his inability to attend the meetings of the local medical societies

Dr Wilkinson was unmarried

THE LATE MR LEONARL

Prof J A RYLE writes "*Of good*
there are plenty, but we count ourse
if in a lifetime rich with human contact
ten of truly outstanding nobility o
character Among such precious co
may be one or two who claim our furthe
affection for some rare quality of mind
or for the perfection of their scientific
achievement By all who knew him well
Joyce of Reading will be included at least
first of these two categories, by his intimat
with the elect minority

"His professional life was one of u
endeavour to achieve the best The writer
notes is probably not alone in the belief t
actually achieved it, so far as one man can do,
realm of surgery, and that, in the last decade
of his active life, neither London or any other
in these islands could boast a better surgeon
diagnosis, in judgment, in the care and scien
thoroughness of his investigation of cases, in ope
tive skill and technique and in aftercare he ma
himself a master Nor did he confine himself to
single branch of his art The needs of a large count
hospital, where fine general surgeons are often bred do not stop short at abdominal surgery or the ordinary routine procedures and emergencies Joyce's opinion and action in a thoracic or genito urinary problem or, if occasion arose, in a neurosurgical problem were instructed, not by necessity, courage and enthusiasm alone, but by educated thought which he constantly sought to keep abreast of modern advances A neurological friend who visited him a fortnight before his death found him fully conversant with all Cushing's monographs His reading and knowledge of the literature was very wide Year after year he would spend a part of his holidays visiting foreign clinics and in his unobtrusive way he was an active member of several of the more important medical societies

"It was significant of the admiration which his colleagues felt for him that a group of London surgeons a few years ago paid a special visit to Reading to see some of his work and to enjoy demonstrations not only of his surgery and its results, but also of his private pathological collection accumulated in illustration of the subjects which had particularly engaged his interest He was an originator and the chief inspiration of the *Royal Berkshire Hospital Reports*, a periodical unique of its kind He was not a prolific writer, but all his publications were of a very high standard and they covered a wide field Noteworthy papers came from his pen on the surgical aspects of peripheral nerve injuries, on carcinoma of the breast, on an operation for the substitution of a thumb, on renal carbuncle and perinephritis, on subperitoneal effusions simulating intraperitoneal disease, and on his follow up system To the very last his mind was active with discoveries and improvements likely to be of value to *himself and others*, based upon his long experience and collected and classified by means of his careful *system of records and follow up inquiry*

"Whether in the Royal Berkshire Hospital, where he became senior surgeon, or in his nursing home, Dunedin, the quality of his conscientious work and organisation was always a matter for admiring comment A consultation with him at Dunedin was a great privilege Both in the urgent and the chronic case his judgment was so sound and so carefully considered as rarely to call for criticism or modification Cases requiring special investigation had and he drew chil in advance of the consultation, every in himself whoseage of modern radiological or chemical was wrinkled delleagues accounted themselves almost

"He could ra the help which he gave them as their play it from came under his care He inspired a during monthsa in his hospital associates and in the returned. Onnurses who worked for him It is no recall the su his aid was constantly sought throughout priceless bound the neighbouring counties and beyond Cairo—his or years he was grossly overworked. book of hol his other qualities ding ded a quiet the Great's an intellectual code, d a power of self- of a great unusual in a man of such abundant activity pages by evement in a practical field Kindly and

"Happ in his human relationships, with a gentleness dignity patients masked only in a slight degree by his that mness, genuine in his affection for his fellow men, utterly is intolerant only of carelessness or bad work anything savouring of intellectual dishonesty. Pro London claimed him he might have proved too Colle ible to be an impressive teacher, but his eager cover rest in medicine, his methods and his results would at 67 ywhere have ensured, as they did among his niors, contemporaries and juniors in the profession, loyal following of grateful students. His service in is allotted sphere may well have been more valuable than if chance had attached him to a teaching school.

"In his life and its general plan and purpose his conduct was as true as in his science and surgery. Essentially religious, in the word's best sense, he passed in his later years from the orthodoxy of his early upbringing to a rationalistic and philosophical mode of thought His sympathy engendered of human suffering witnessed here and now, his biological outlook, his honesty of mind, his belief in the ultimate power of science and reason compelled this change. In a last letter to a friend written from his sick-bed he spoke of his 'faith in the essential goodness of the common people, a faith that an age-long process is at work making for the greater happiness and welfare of humanity at large, a [illegible] in toleration and freedom, a faith in the ultimate triumph of human reason and understanding.' We may be glad that he did not survive to see Europe in worse disruption.

"Fly-fishing and bell-ringing were his relaxations. A year or two ago, never having climbed before, he accompanied his eldest son on some difficult rock-climbs in the Welsh mountains. He was fond camping holidays with his jolly family. He ha deep love of natural beauty. He leaves a widow four children—two sons destined for his own p fession and one daughter a nurse. He was educa at Cambridge (where he obtained a first class in natural sciences tripos) and at St. Bartholome Hospital.

"Living so intensely, toiling so incessantly at anxious tasks of his calling, it is no matter surprise that the years took early toll of his physiq and that he died of a coronary thrombosis at t age of 57. His small strong figure, his welcom smile and handshake, his active understanding m will leave a cherished picture in the thought of patients, his colleagues and his friends, wh sympathy for his wife and children and all dear him will only be heightened by their own sense personal loss."

THE LATE SIR HENRY LUNN

WHEN his final illness began, Sir Henry Lunn h just completed the cruise of the *Letitia* from Glas to Toulon by way of the West Indies, and he wo have accompanied the Hellenic Travellers' Club (w he had founded in 1909) to Epidaurus and C member of the ship's company writes of him follows: "Although it would not be quite true describe him as a doctor who never practised an parson who never preached it has quite truly b said that Lunn gave to thousands of English-speak people a less parochial and insular view of peo of other lands, so helping them to understand e other better. His medical work was done fifty ye ago and his recent contact with the profession on the Hellenic cruise in early spring, frequented the doctor on holiday. On the *Letitia* he was mainspring of th [illegible] he knew everyone everyone knew him; and he would wander fr group to group ready with a fund of quips anecdotes. And he was always watchful—qu to check any little difference that might arise mar the harmony of the cruise: a benevolent prese but definitely a dictator. 'Never lower your sail the face of danger' was often on his lips. It wa characteristic of the man, for if he knew fear scorned it."

MEDICAL NEWS

University of London

Mr. G. A D. Haslewood, Ph D, has been appointed to the university readership in biochemistry at Guy's Hospital medical school

Dr Haslewood, who is 28, was educated at St Marylebone Grammar School and University College, London He obtained his B Sc with first-class honours in chemistry in 1931, his M Sc in biochemistry in 1932, and his Ph D in chemistry in 1933 From 1931 to 1932 he did research work in the biochemistry department at University College and also acted as demonstrator in teaching medical students From 1932 to 1933 he held a grant from the Department of Scientific and Industrial Research, and in 1933 he was awarded a Donner foundation grant at the research institute of the Cancer Hospital Since 1935 he has been assistant in pathological chemistry at the British Postgraduate Medical School His published work includes papers on turbidimetric estimation of protein and microchemical blood analysis

The degree of D Sc. has been conferred on Dr. Mary Lucas Keene, professor of anatomy in the university at the Royal Free Hospital.

University of Dublin

Dr. E A Bennet has been appointed lecturer in psychological medicine at Trinity College. He will visit Dublin during each summer term to give his courses of lectures.

Society of Apothecaries of London

At recent examinations the following candidates we successful.—

Surgery—D E Harken, A. N. Kalra, S Smith, and A. Taylor.

Medicine—T. Bliss, G R Green, D. E Harken, and Woolwich

Forensic Medicine—T. Bliss, G. R Green, D E Harken, H. Woolwich

Midwifery—R M J Franks, T L B Iredale, L. Reynolds, R G Ticehurst, and M Whitehead

The following candidates, having completed the f examination, are granted the diploma of the Soci entitling them to practise medicine, surgery and m wifery. G. R Green, St. Mary's; D. E. Harken, Harvar A. B Taylor, Lpool; R. G. Ticehurst, Camb a Guy's; and M. Whitehead, Roy. Colleges, Edin, a West Lond.

Guy's Hospital

Mr. W. E Gaunt, Ph.D, has been appointed to dental research fellowship in the medical school t hospital.

Dr. Robert Melig Library